A W. R. C. Smith publication

FIFTY CENTS

Textile Industries

Formerly "COTTON"

DECEMBER, 1959

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4
University Microfilms
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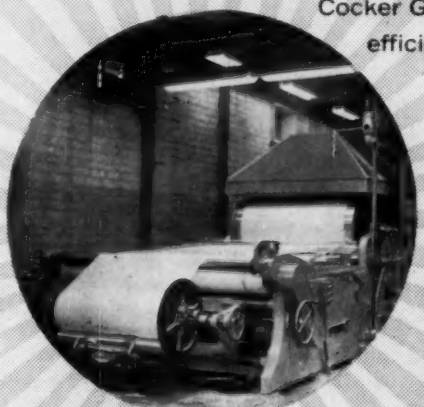
Ann Arbor Mich

Now it's 51

In the year since its first showing, mills have expressed their preferences with orders for about as many Cocker GH Slashers as for all other makes combined.

Cocker's simple and trouble-free GH Drive ★ the complete elimination of projecting spindles ★ rugged construction ★ quiet operation ★ the Cocker Compensating Beam Drive which puts 20% to 25% more yarn on loom beams ★ and the new highly efficient **DA** Size Box, are a few of the Cocker GH Slasher's valuable advantages. High production rates with improved moisture regain and better size pickup and penetration make the Cocker GH Slasher the most efficient and economical in the World.



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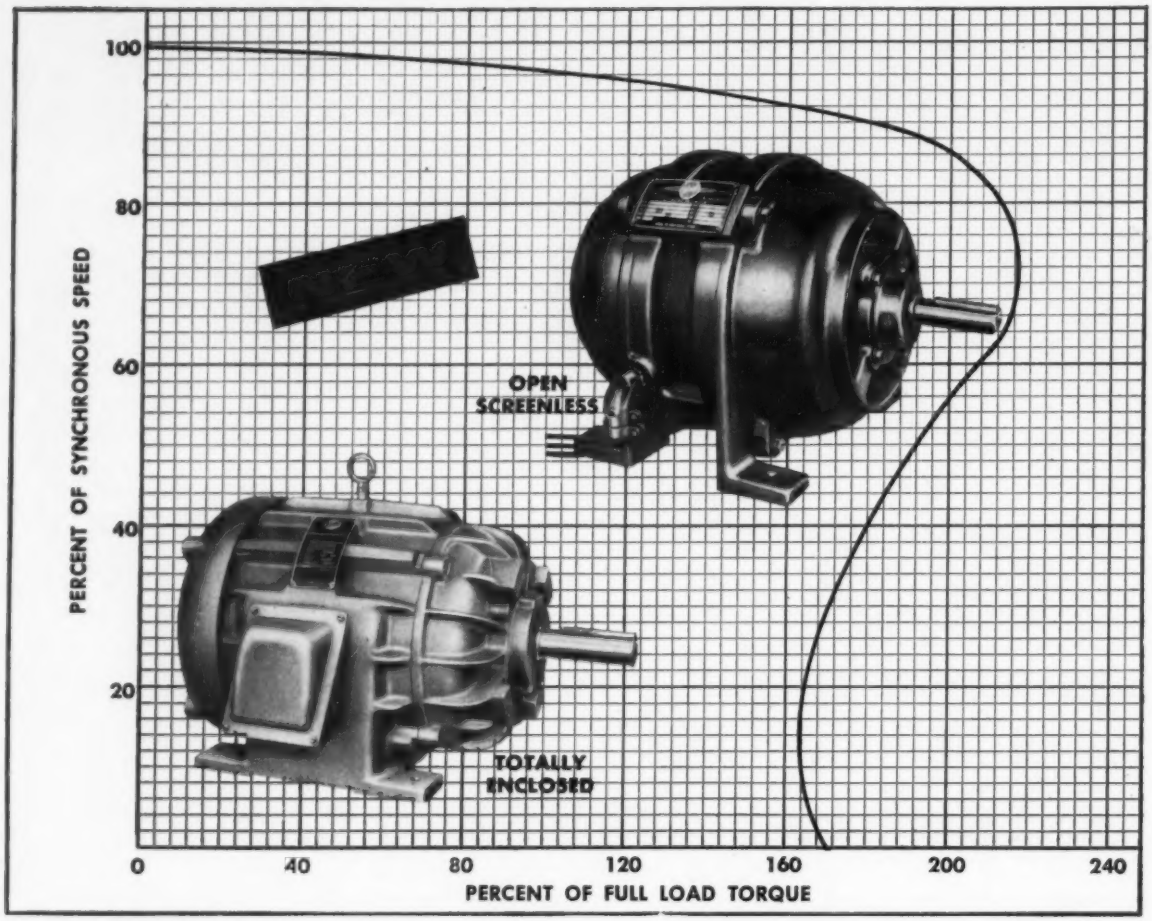
The New Cocker GH Slasher

COCKER MACHINE & FOUNDRY COMPANY

IN CANADA: Contact W. S. Clark, Montreal, Canada, Dupont 7-2242 | PLANT & OFFICES at Kenly, N. C. MAILING ADDRESS Gastonia, N. C. | WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Ask for the index of 1959 TI articles (details on page 99)



DIEHL* "*Smooth-Accel*" TEXTILE MOTORS

Designed specifically for roving, spinning, combing and similar applications requiring smooth, uniform acceleration

Available in Sizes From 1 to 20 HP

This new line of DIEHL "Smooth-Accel" Textile Motors meets the textile industry's requirements for motor drives with extra smooth and uniform acceleration characteristics, and incorporates design advancements which make this new line top-choice for the efficient operation of today's high speed textile machines.

Note These Important New Advantages

● **Smooth Acceleration:** Smooth, gradual rate of acceleration over the entire operating cycle features the new "Smooth-Accel" line . . . resulting in materially reduced "ends-down" time, and uniform quality of production. The typical curve above illustrates the excellent speed-torque characteristics from zero to full speed. Reconnection of leads for new frame break-in is unnecessary.

● **Reduced Power Costs:** DIEHL "Smooth-Accel" Motors have both high efficiency and power factor over the complete operating range . . . *keep power costs to a minimum.*

● **High Over-Load Factor:** Liberal electrical design and effective ventilation of DIEHL "Smooth-Accel" Motors substantially increase the overload factor, minimizing initial investment . . . *more horsepower at lower cost.*

● **Long Service Life:** "Smooth-Accel" motor windings feature high dielectric and mechanical strength, high thermal rating and special humidity-proof impregnation ... protection against wide voltage variations and the effects of continuous operation under adverse conditions.

● **Construction Features:** Streamlined, easy-to-clean enclosures—dynamically balanced rotors — over-size bearings — large 4-way terminal box (oil- and water-tight connector and vinyl-covered cable optional) — standard NEMA mounting dimensions for ready interchangeability — *minimum maintenance.*

. . . these advantages are yours at *no* increase over standard textile motor prices! Before selecting your next motor drive for replacements, modernization or new equipment, get the DIEHL story about the New "Smooth-Accel" line.

*Trademark of DIEHL MANUFACTURING COMPANY

Diehl*

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Electrical Division of THE SINGER MANUFACTURING COMPANY

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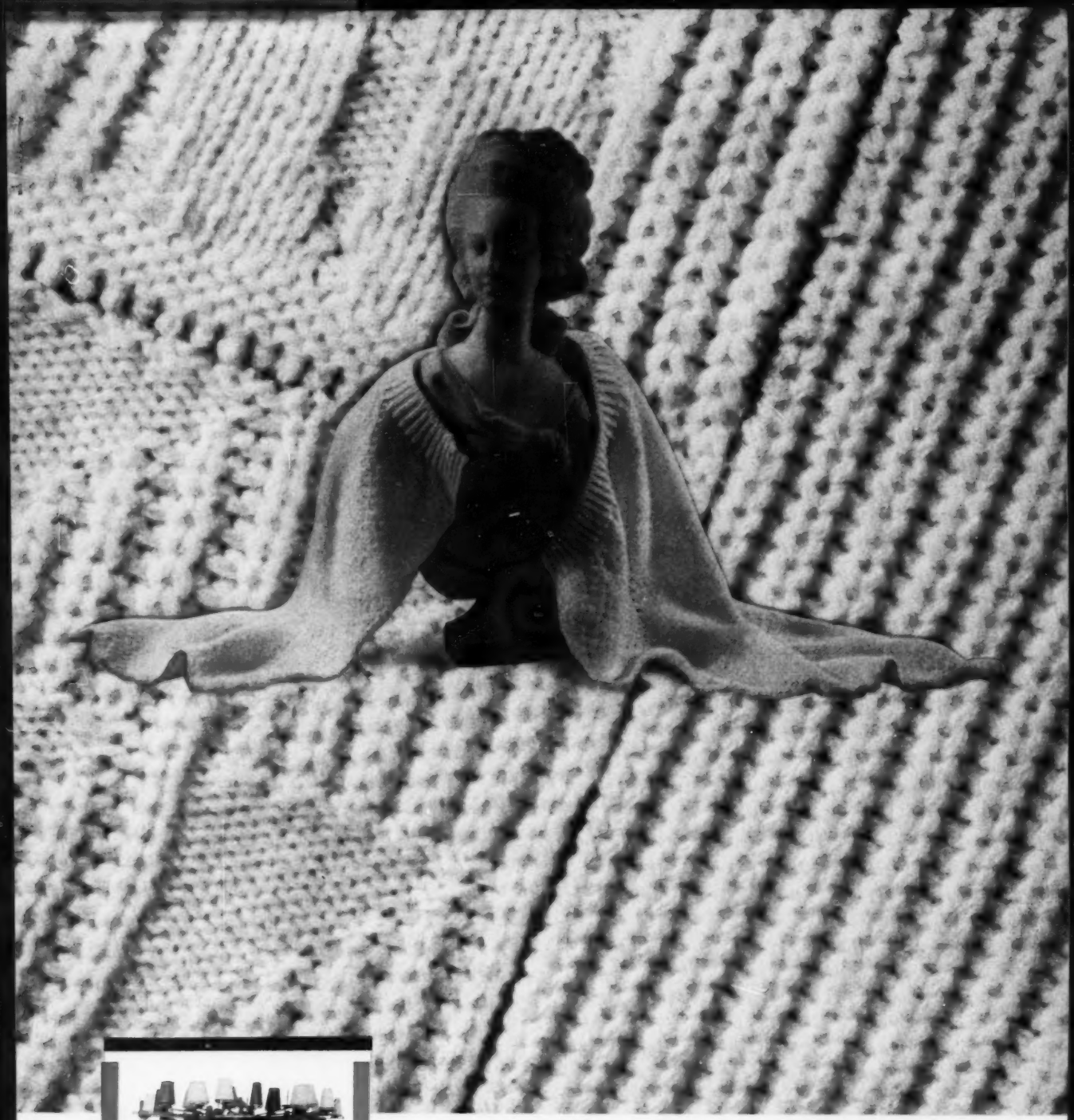

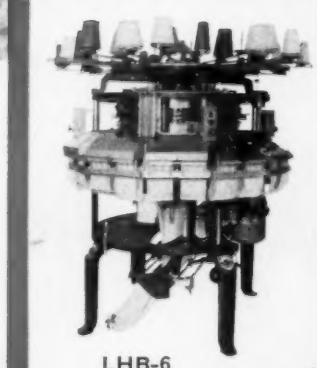

LHB-6

Traditional quality . . .

Now the LHB-6 offers quality "Bulky knits" in 3 or 4 cut 30" diameter with all the versatile features of the LH-6. A machine designed especially for "bulky knit" fabrics with a wide range of pattern possibilities including half cardigan, links and links, jersey, reverse jersey or in a variety of combinations with panels, self designs, tuck effects and other fancy stitches all with various rib cuffs.

WILDMAN JACQUARD

WILDMAN JACQUARD CO. • 1210 Stanbridge Street • Norristown, Pennsylvania • Manufacturers of **HEMPHILL BANNER** Knitting Machines

A subsidiary of Draper Corporation, Hopedale, Mass.

ENKA NYLON

...the nylon with new performance features!

Enka Nylon enables knitters and weavers to produce new fabrics with inherent characteristics that generally cannot be obtained with other available nylon yarns and fibers.

A synthetic polyamide fiber made from caprolactam, Enka nylon is a different product made from different raw materials. While it is new in the American market, it has been produced in substantial volume in Europe for many years.

The different molecular structure of the yarn produces a somewhat more absorbent fabric with greater affinity for dyes. Enka nylon accepts color rapidly and completely; its evenness of dyeing is the envy of the industry.

Enka nylon processes exceptionally well on standard equipment, and it is generally suitable for all applications in which Type 66 nylon is used. It has all of the proven advantages of regular nylon plus some extra performance characteristics of its own. Enka nylon's lower melting temperature generally permits the application of lower heat-setting temperatures.

Since the polymerization of Enka nylon occurs on a continuous basis, there is more uniformity in the polymer itself. This uniformity is not matched by nylon yarn produced on a batch basis. The higher elongation and lower elastic modulus of Enka nylon produce fabrics of greater elasticity and contribute to better fit and wearing comfort.

ENKA NYLON YARNS

Den/Fil	Twist	Luster	Type	Tenacity	Package
15 monofil	0.5Z	Semi-dull	9506	Normal	Pirn
15 monofil	0.5Z	Semi-dull	9506	Normal	Beam
15 monofil	0.5Z	Dull	9514	Normal	Pirn
15 monofil	0.5Z	Dull	9514	Normal	Beam
15/2	0.5Z	Semi-dull	9518	Normal	Pirn
18/2	0.5Z	Semi-dull	—	Normal	Pirn
20 monofil	0.5Z	Semi-dull	9524	Normal	Pirn
20/2	0.5Z	Semi-dull	9478	Normal	Pirn
30/4	0.5Z	Semi-dull	9532	Normal	Pirn
30/6	0.5Z	Semi-dull	9464	Normal	Pirn
40/8	0.5Z	Semi-dull	9448	Normal	Pirn
40/8	0.5Z	Semi-dull	9448	Normal	Beam
50/13	0.5Z	Semi-dull	9528	Normal	Pirn
70/32	0.5Z	Semi-dull	9622	Normal	Pirn
100/32	0.5Z	Semi-dull	9652	Normal	Pirn
200/16	0.6Z	Bright	9826	Normal	Cone
200/16	0.5Z	Bright	9826	Normal	Beam
200/34	0.6Z	Bright	9832	Normal	Cone
200/34	0.5Z	Bright	9832	Normal	Beam
260/16	0.6Z	Bright	9197	Normal	Cone
260/34	0.6Z	Bright	9197	Normal	Cone
520/32	0.6Z	Bright	9546	Normal	Cone

Top mills are now using Enka nylon for a multitude of end-products. They are taking advantage of the different, more desirable characteristics of Enka nylon to style a new world of apparel and home furnishing fabrics.

For details about Enka's "customer service" program get in touch with A. B. Harris, Jr., our Nylon Product Sales Manager. He will introduce you to Enka nylon and the merchandising bonus Enka's nylon customers enjoy. Phone Mr. Harris in New York at OXford 7-6141, Extension 26, or contact the Enka sales office nearest you.

SO MANY GOOD THINGS BEGIN WITH **ENKA NYLON** *Yarns*

American Enka Corporation • 530 Fifth Avenue • New York 36, N. Y.
Producers of Rayon • Nylon • Yarns • Fibers

Textile Industries

Formerly "COTTON"

DECEMBER 1959 VOL. 123, NO. 12

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Photo courtesy Burlington House Fabric Company, New York, N. Y.

Smart new way to cover a market

Fabrics with high fashion appeal have never been used for mattress coverings before—and with good reason. Attractive materials like rayon damask simply couldn't take the pull and strain of a tufted mattress.

Now, thanks to PLIOLITE LATEX, a smart-looking line of rayon damask mattress coverings has been created that not only calls for customer attention—*but lasts longer, too.* That's because a coating, based on PLIOLITE LATEX, provides the necessary adhesion to hold warp and filling threads in place—gives the fabric better body, improves seam strength. And because this latex is easy to process—with excellent mechanical stability—the production operation is efficient and economical.

Want more information? Simply write for details on PLIOLITE LATEX – including latest *Tech Book Bulletins*—to

Goodyear, Chemical Division,
Dept. L-9439, Akron 16, Ohio.

GOODYEAR
CHEMICAL DIVISION

Pliolite—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

"Sure, I've heard this business about all work and no play, but....."

"All work and no play. . . ." The old adages may not be true today. We used to say "everything that goes up, must come down." Not necessarily so; it may go into orbit.

Si's aquarium just might have a bearing on textile wet processing research.

Whatever your problem, call us for technical service.

Warp Sizing: *Softeners, Binders, Penetrants, Ty-In Penetrants, Shuttle Dressing, Waxes.*

Wet Processing Chemicals and Auxiliaries: *Dye Assistants, Penetrants, Rewetting Agents, Sanforized Fabric Oils, Detergents, Scouring Agents, Softeners.*

Niagara Twist-Setter: *Yarn Conditioning Penetrants.*

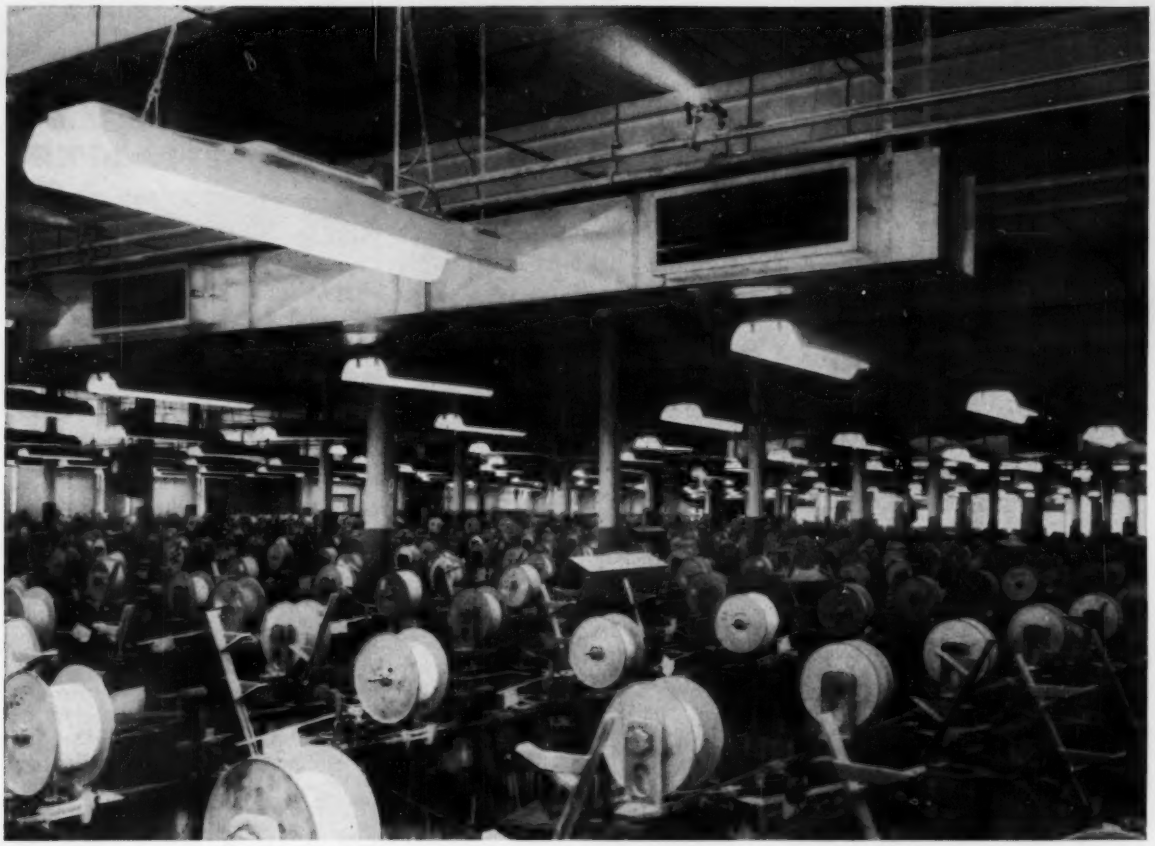
Seyco Warp Lubricator.

Headquarters for textile chemicals

SEYDEL-WOOLLEY & CO.

748 RICE STREET, ATLANTA, GEORGIA

SEYCO



Providence Braid Company, Providence, R. I. showing ductwork, air outlets and atomizers.

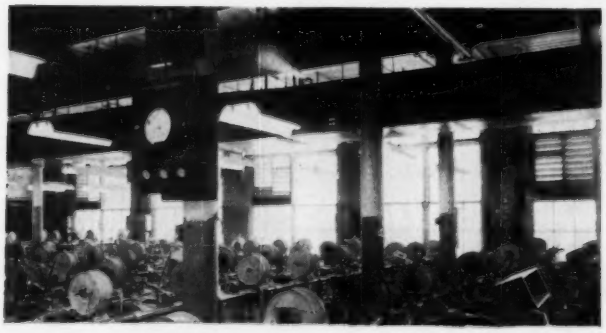
Is your humidifying system providing maximum cooling?

At Providence Braid Company an Amco Unit Dry-Duct system operates to control humidity precisely and, at the same time, to provide maximum cooling commensurate with the required evaporation.

As moisture from atomizers in a humidifying system evaporates, heat is absorbed and the air temperature is lowered. This cooling can be increased substantially by a positive ventilating system (such as an Amco Unit Dry-Duct system) which introduces fresh air uniformly throughout the mill room, thereby deliberately increasing the demand for evaporation in order to lower the temperature and maintain the selected humidity.

A unit dry-duct system consists of one or more air handling units, air ducts, room atomizers and pressure type window vents. When cooling is not required, recirculated air (instead of fresh air) is drawn into the unit, filtered and heated when necessary, then distributed through the ducts back into the room.

Amco's Unit Dry-Duct system is only one of several types of textile mill air conditioning systems which Amco engineers, manufactures and installs. For expert help, based on more than 70 years' experience, next time call on Amco.



◀ In same mill room, humidity control in foreground — window exhaust vents in background.

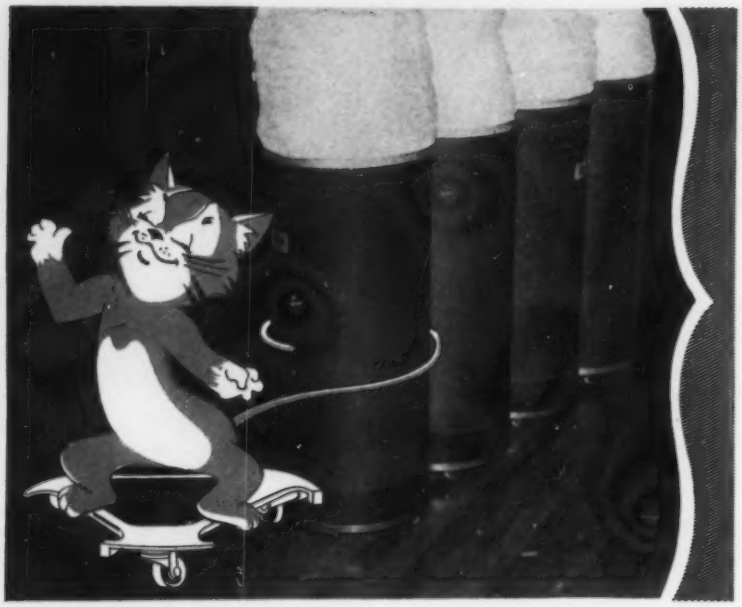
AMCO

SINCE 1888

AIR CONDITIONING EQUIPMENT

AMERICAN MOISTENING COMPANY, CLEVELAND, N. C.

Branches: Atlanta, Ga. • Providence, R. I. • Toronto, Ont.



SOUTHERN STATES LARGE COILERS AVAILABLE WITH NEW ALLEY-SKAT TO SPEED DOFFING AND CONVEYING

Large-size Southern States Coilers are now available with ALLEY-SKAT, the simplest, most economical can conveyor system ever developed. The problem of doffing and moving heavier cans may now be solved with a low capital outlay.

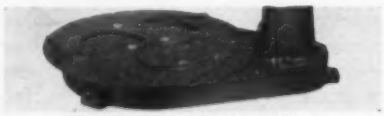
For example, suppose you are equipping your mill with large Southern States Coilers: if you decide to employ ALLEY-SKATS, you can specify that special cantable adapter plates be included at no extra cost. The only additional charge is for the can latches and ALLEY-SKAT dollies, which are available at nominal cost.

The latches and dollies are easily and quickly installed on any standard can without drilling or alteration.

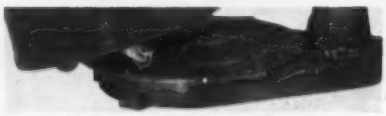
The ALLEY-SKAT is strictly optional equipment. However, if you are concerned with handling large cans, as most mill men are, we suggest that you investigate the ALLEY-SKAT.

Get full information from your Southern States representative or write for Bulletin 501.

ALLEY-SKAT Dolly mounts to inside of can rim. Dollies are made of finest materials, including heavy-duty mill-type casters.



Cantable adapter plate is available as standard equipment on Southern States Coilers at no extra charge.



Doffing of large, tightly packed cans is quickly and easily accomplished. No lifting required.

SOUTHERN STATES
EQUIPMENT CORP.
HAMPTON, GEORGIA

For further information use Handy Return Card, Page 167

SHORTS & REMNANTS

Christmas Gift Suggestions

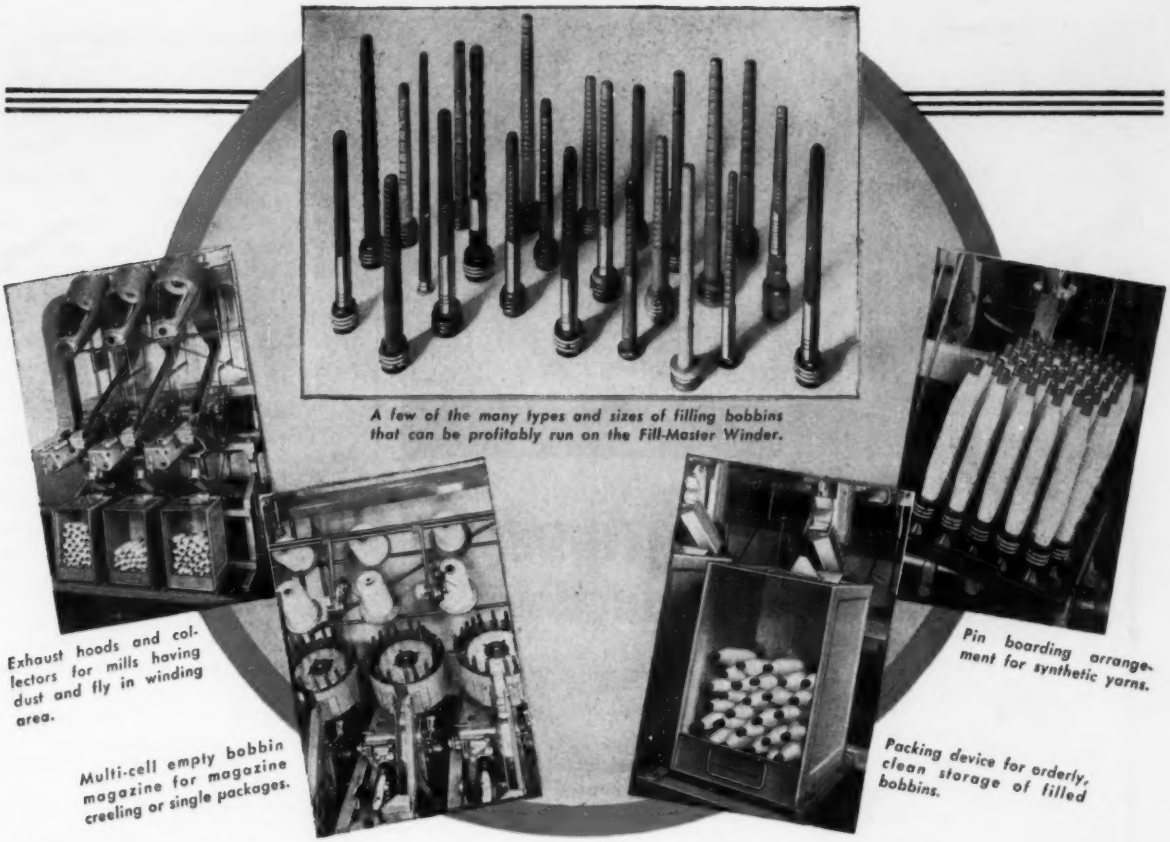
If, like most of us, you're a little late in taking care of Christmas gifts for wife, family, friends, and customers, here are some practical last-minute suggestions, passed on to you by S & R as a public service, from the Christmas Catalog of Neiman-Marcus, Dallas, Texas:

A prize Black Angus steer served on the hoof, right to your steak-loving friend's door on Christmas morning—gift wrapped. Includes a 21 Club Roast Beef Cart; price: $1,925, FOB Chicago. Or if your friends are chicken about doing what's necessary with a live steer, you can have the critter delivered dressed and ready for the freezer for $2,230.

A necklace of emeralds (38.66 carats) and diamonds for a round $100,000. But don't look so startled—that includes tax. And as a neat touch you can put a pair of tiered earrings to match in her stocking for only $30,000, also including tax.

And then for the more frolicsome set there's a complete beach party for $151,580.70 (presumably the 70c is Texas sales tax). This includes a Jeep Surrey, with a fringe on top; chinchilla coat, emerald and diamond drops; pearshaped diamond necklace; gold woven purse, diamond clasp; evening dress; vicuna fur rug; grill; coffee pot; champagne bucket; champagne glasses; transistor radio; transistor TV; picnic case; and gourmet food basket.

But this is what the National Cotton Council suggests:



A few of the many types and sizes of filling bobbins that can be profitably run on the Fill-Master Winder.

Exhaust hoods and collectors for mills having dust and fly in winding area.

Multi-cell empty bobbin magazine for magazine creeling or single packages.

Packing device for orderly, clean storage of filled bobbins.

Pin boarding arrangement for synthetic yarns.

Only the Whitin-Schweiter FILL-MASTER* Filling Winder

Gives you such Complete FLEXIBILITY and ADAPTABILITY

Whitin-Schweiter Fill-Master Winder with Bobbin Loader*

Flexible . . . . for fully automatic winding of cotton, wool, worsted, synthetics and blends.

Adaptable . . . to a broader range of mill requirements than any other winder thru its complete line of optional accessories (see illustrations)

These are only two of many outstanding advantages, including:

- Machine speeds up to 10,000 R. P. M.
- Speed of individual spindles adjustable
- Bobbins up to 10⅛" • Tail-less bobbins
- Variable layer locking traverse prevents sloughing
- Maintains uniform winding diameters, resulting in more yardage per bobbin

*Trade Mark

Whitin MACHINE WORKS

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CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Manufactured by **WHITIN** *for sale in U. S. A. and Canada*
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WORK...

HAND-IN-HAND WITH D&F
"Coordinated Production"
in the Woolen System

☞ Davis & Furber "Coordinated Production" **means** the successful efforts of D&F Men, Methods, Machines and Materials to produce more useful products of better quality and greater efficiency.

☞ D&F "Coordinated Production" **means** the most modern, most productive wool preparatory, Carding, Spinning, Yarn and Finishing Machinery Systems in the world.

☞ It **means** a single, dependable source for a complete line of Accessories, Supplies, and Maintenance Parts: Card Clothing, Garnett Wire, Napper Clothing, Condenser Tapes, Rubb Aprons, etc.

☞ It **means** Operational and Maintenance Instruction, Advice and Counsel on D&F equipment.

☞ It **means** impartial, technical, In-the-mill survey, Analysis and Recommendation.

☞ Essentially, D&F "Coordinated Production" **means,** to the mill, Long-Term profits in highly competitive markets. Call us about it today. We'll be glad to show you the way.

Are you on the D&F News Mailing List?

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TEXTILE MACHINERY DESIGNERS AND MANUFACTURERS
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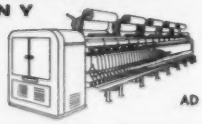
ATLANTIC CITY, U.S.A. ATMA MAY 23-27, 1960
see the D & F exhibit



AD 14-3

CARDS • SPINNING FRAMES • PREPARATORY MACHINERY • WARP DRESSING MACHINERY • FINISHING MACHINERY
MACHINERY MODERNIZATION • ACCESSORIES, SUPPLIES, SPARE PARTS • TECHNICAL SERVICE & CONSULTATION

SHORTS & REMNANTS

(from page 8)

► We ran into an old friend on Peachtree Street the other day. After exchanging pleasantries, he said abruptly, "I hear Springs Cotton Mills are going to Close." Somewhat taken aback, we said, wittily, "No!" "Yes," he replied, "to Hugh Close, the Colonel's son-in-law—he's going to be elected president of Springs." And he was, too.

Skin Game

"The American Medical Association gave me your address, as they thought you might be able to help me.

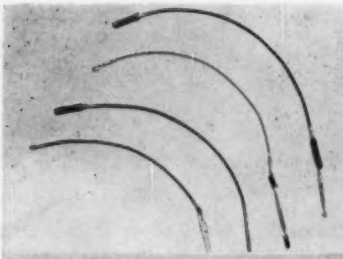
"I'm allergic to the drip-dry cottons, in fact all the finishes used on cotton today. I was quite all right when the cottons were just Sanforized.

"I wonder if you would know where I can get cotton clothes or cotton yard goods without the chemical treatment. I am unable to wear any of the synthetics, and am having a really bad time."

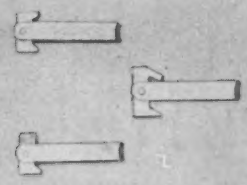
MRS. ANTHONY ALMOND
125 Harbor St.
Branford Point, Conn.

► Will readers with suggestions for solving Mrs. Almond's problem please pass their ideas along to her?

► But TI's readers have certainly not been allergic to the special 32-page feature on wash-and-wear which we published in October. Included among those sending in their requests for reprints early were **C. L. Zimmerman,** asst. dir. of res., Dan River Mills, Danville, Va.; **Richard A. Feis,** Cone Mills, Inc., NYC (50 copies); **R. C. Geering,** dir. of res., Princeton Knitting Mills, Watertown, Conn.; **Eleanor Marples,** res. dept., Kendall Mills, Walpole, Mass.; **G. C. Tesoro,** Central Res. Lab., J. P. Stevens & Co., Garfield, N. J.; librarian, Dominion Textile Co., Montreal, P. Q.; **Theo. C. Scheitlein,** Rockville Processing Co., Rockville, Conn.; **Gerardo Pozas S.,** Q C Dept., Hilados del Norte, S. A., Monterrey, Mexico; **Allan Ralston,** Bradford Dyeing Association (U.S.A.), NYC; **H. M. Pontefract,** Sterling Pile Fabrics Corp., Fall River, Mass.; **Jackson Bauer,** dir. of res., Collins & Aikman Corp., Albemarle, N. C.; **Emery I. Valko,** Lowell Technological Inst., Lowell, Mass.; **Don Sheldon,** Reeves Bros., Inc., NYC; **Dr. Virginia Degens,** N. V. Boekelosche-Stoombleekerij, Boekelo, Holland; and **Grady Withers,** Erwin Mills, Inc., Cooleemee, N. C., to name but a few.



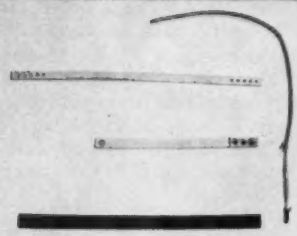
FOR LOOM



CORDS AND HARNESS ADJUSTERS

STIRRUPS, LOOPS, JACKEYES

CHANGE-OVER



YOU'LL NEED

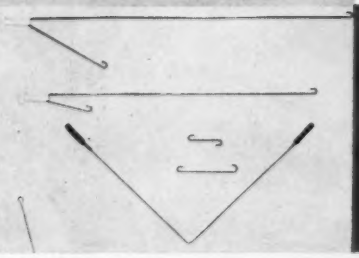
STRAPPING AND HARNESS ADJUSTERS

WIRES, HOOKS, STIRRUPS

THESE ITEMS

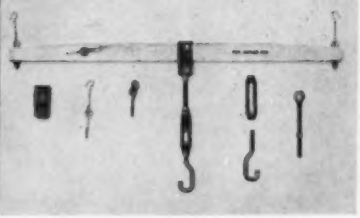
PLASTIC, WOOD, ALUMINUM SHEAVES

JACKSTICKS AND PARTS



THESE ARE ALWAYS "ON THE SHELF" READY FOR IMMEDIATE DELIVERY

. . . also pull down springs, loom anchoring pads, take up roll covering, shuttle fur.



BATSON HAS THEM... and we will send them to you immediately. Orders will be filled the same day received... without delay, thus saving you lost time and money. Phone Greenville CEdar 2-7691 and relax — your order is already on the way!

LOUIS P. BATSON Company

P. O. Box 772
GREENVILLE, S. C.

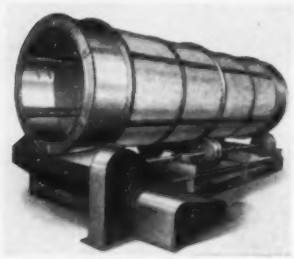
Since 1852

FIBRE PROCESSING MACHINERY by SARGENT

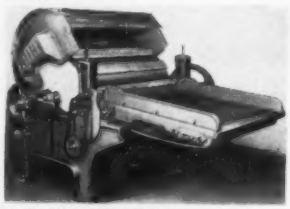
From Bale Opener through Dryer, Sargent's modern fibre processing system gives you completely automatic continuous production . . . an uninterrupted straight-line flow of quality-protected fibres at an economy you cannot afford to overlook. Let us tell you more.

FEEDERS • OPENERS • PICKERS • BLENDERS
WASHERS • DRYERS • TOP & YARN HANDLING
AND SPECIAL PURPOSE MACHINERY

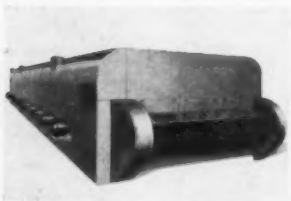
BALE OPENER AND PICKER
Continuous opening, picking and feeding, cotton linters or staple. Excellent on machine-picked cotton.



SQUIRREL CAGE DUSTER
Continuous dusting of heavy grease wools, waste, rags. Also very efficient blender.



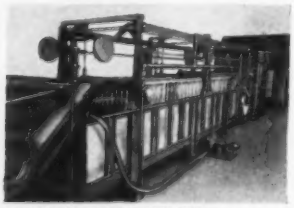
WET AND DRY PICKER
Highly versatile—for fibres after bleaching, after dyeing. Works equally well with wet or dry fibres.



STOCK DRYER
Leads all dryers for performance and dependability on scoured or dyed wools, cotton, synthetics.

MIXING PICKER
For continuous blending—all fibres.

FIBRE PROCESSING SYSTEM
Section of recent installation showing high economy, complete dependability. Fibres are not handled from opening to drying.



STAINLESS STEEL WASHER
For scouring, bleaching, acidifying.

C. G. SARGENT'S SONS CORPORATION
Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA • CINCINNATI • ATLANTA • CHARLOTTE • HOUSTON • CHICAGO • DETROIT • TORONTO

SHORTS & REMNANTS

(from page 10)

► Sign on the rear bumper of a Corvair, buzzing along U. S. 29 in North Carolina: "Volkswagen, go home!"

Texas-Type Sheep Story

Once upon a time there was a sheep raiser in Texas who lived next to a busy highway. One day his wife became dissatisfied with the color of the living room drapes and ordered him to dye them blue. He prepared a tub of blue dye in the back yard, but along came a lamb and fell in. The man picked up the animal and chased him away.

The next day a motorist stopped by and asked whether he could buy the beautiful blue lamb. The Texan got a high price for the lamb—and an idea. He dyed lambs various colors and made more money than he ever had before in his life.

In fact, business is so good that he is the biggest lamb dyer in the State of Texas.

Job, Move Over!

We see where **Jim Plunkett** has been made advertising manager of

Noble Gent

the Fiber Glass Division of Pittsburgh Plate Glass Co. TI's ad manager, **Walt Mitchell,** says this is an honor richly deserved. It seems that Jim, steeped in the agony of a cold and surrounded by a mountain of work, was kind enough to stay after working hours one rainy afternoon last summer to hold still for a sales pitch by our wandering southern boy. He didn't buy anything, but wow—such dedication to the job! Probably missed his commuter train, too.

Fifth Column

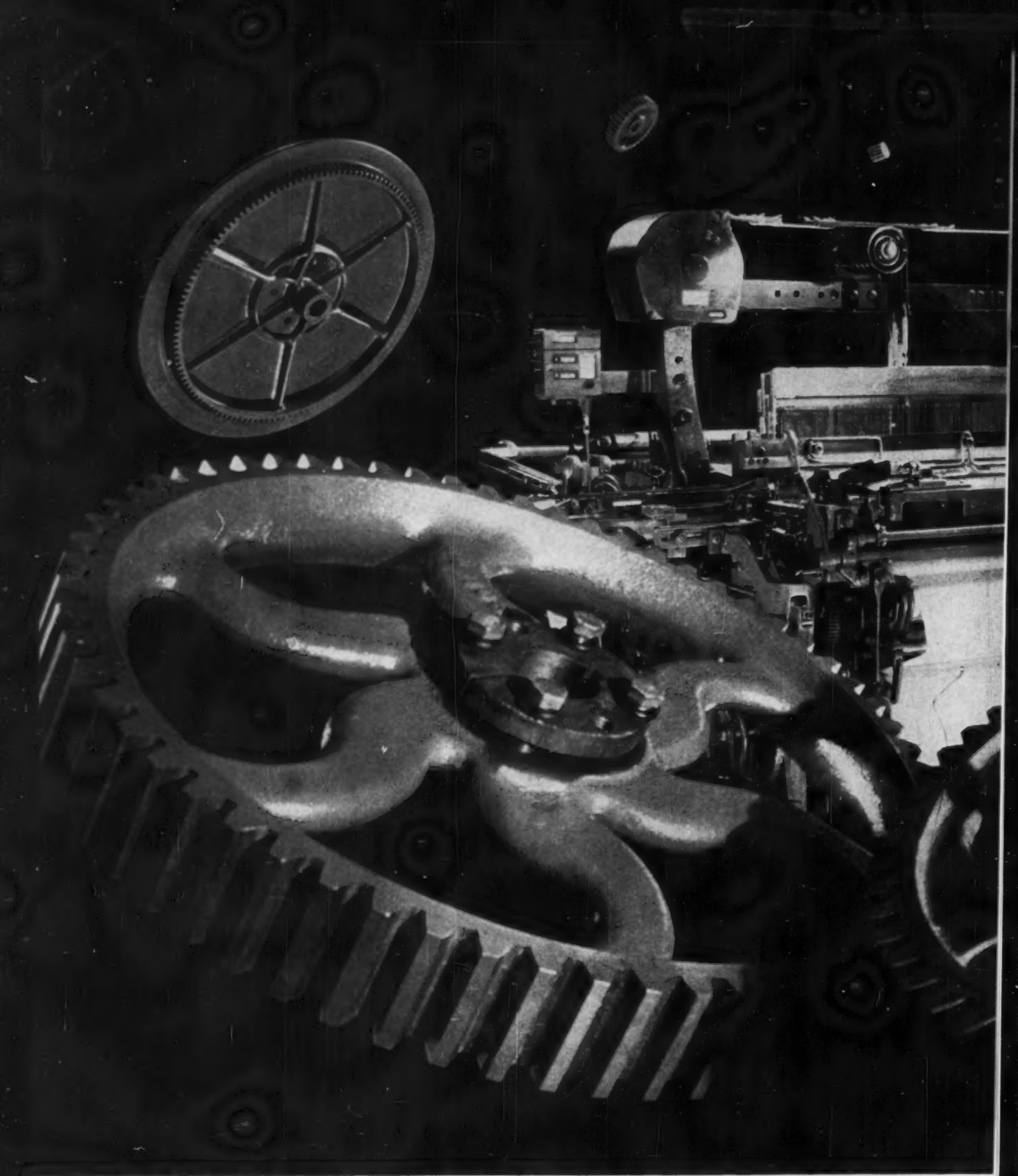
Maid of Cotton for Winston County, Alabama, is **Louise Carroll.** And she works in applications research at Chemstrand Corp.'s Decatur, Ala., Acrilan plant.

However, cotton folks, synthetics folks, wool folks, and just plain folks

Continued on page 22

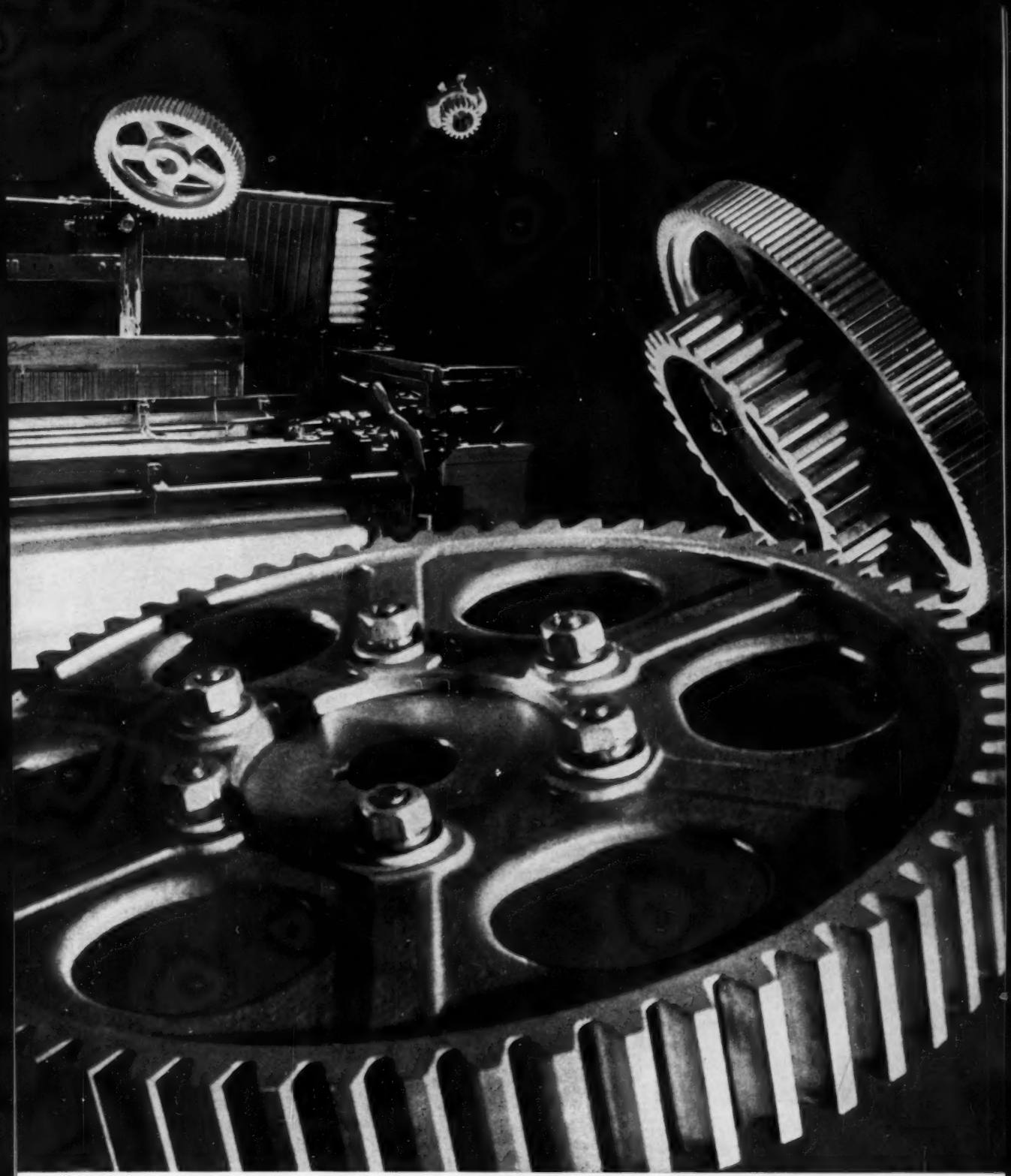
Penick & Ford
HAVE GUM WILL TRAVEL
Penford Gums are extremely versatile hydroxyethyl ether starches . . . well qualified in both fluid and dried film states as Textile Finishing Gums. They contain an optimum degree of hydroxyethyl ether.
On color fabrics, their sharp clarity allows production of superbly crisp finishes without graying or dulling.
Penford Gums are highly reactive with all thermosetting resins. They provide a permanent built hand which is durable to laundering, will not yellow; and they minimize loss of strength associated with dimensionally-stable crease resistant finishes
For Special Jobs—
wire Technical Service
Penick & Ford, Atlanta
HAVE GUM WILL TRAVEL
Penford Gums
Leaders in Epoxy Starches
U.S. Pat. Nos. 2,516,632; 2,516,633; 2,516,634.
PENICK & FORD, LTD.
INCORPORATED
1531 MARIETTA BLVD., ATLANTA, GA.

Manufacturer of Douglas Pearl • Crown Thin Boiling • Douglas Dextrines • Clearsol Gums for the Textile Industry



There are over 30 gears on a Hi-Speed Draper X-2 Model Loom*. Each is of a different shape and size, and contributes in some way to the efficiency and operation of the loom. Draper gears are designed and manufactured to

*Average X-2 Model



fit the Draper Looms in your mill. Draper gears cost less . . . because they wear longer, reduce down time and increase loom production.

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N. C. • SPARTANBURG, S. C.

AHCO DYES Quality-Integrity

PROCION DYES AND YOUR FUTURE THEY'RE LINKED TOGETHER!

IN DYEING APPLICATIONS

1. For cotton and viscose rayon fabrics normally dyed chiefly with direct dyestuffs, where novel methods of continuous dyeing can pay off economically.

2. For cellulosic fabrics with acetate and triacetate effect threads, where good reservation of the latter fibers is obtained and subsequent cross-dyeing with disperse dyestuffs is easily carried out.

3. For towelings, corduroys, draperies, upholstery fabrics, silk and many other fabrics, which individually vary in importance from market to market.

4. For lock-knit fabrics, where the cold-dyeing batchwise methods (for example, on the beck) are economically attractive and where Procion fastness to light, washing and rubbing offers technical benefits.

5. For tufted viscose rayon carpeting, where the shades and fastness of Procion dyes offer advantages over the commonly used directs, and where the novel pad-batch and cold dyeing methods are particularly attractive.

IN PRINTING APPLICATIONS

1. For brighter, faster shades on upholstery and drapery fabrics.

2. For padding of ground shades on white and colored printed resists, where a great advantage is shown in wash fastness when compared with direct-dyed groups discharge-printed.

3. Pajama cloths, napped fabrics, etc., including direct printing of Procion dyes on Procion ground shades.

4. On dress goods to permit easier processing and lower color cost, when compared with many other types of fast dyes.

ESPECIALLY EASY AND ECONOMICAL TO APPLY

Conventional dyeing or printing machinery fully adequate for applying Procion dyes.

Cold dyeing techniques save on steam.

Bright, fast shades in pale to medium depths obtained at costs approaching those of less-fast dyes.

Z 409-8

Quality AHCO PRODUCTS Integrity

ARNOLD, HOFFMAN & CO., INCORPORATED

55 Canal Street, Providence, Rhode Island • Est. 1815

A Subsidiary of Imperial Chemical Industries Limited, England

West Coast Representative: Chemical Manufacturing Company, Incorporated of California

ICI

Procion dyestuffs and the processes for their use and application to textiles are the subject of patent applications in the U.S.A.

"Procion" is a trademark the property of Imperial Chemical Industries Ltd., England.

Be Ready For The Procion Influence In Fiber Reactive Dyeing and Printing

"Buffalo" Air Cooled Condensers Handling Propane Gas on Refrigerated Liquid Propane Storage Spheres. Photo—Courtesy of Rust Engineering Co.

WITH NEW "BUFFALO" AIR COOLED CONDENSERS

Some time ago, "Buffalo" began field testing Air Cooled condensers and Air Cooled Liquid Coolers of completely new design. But we withheld the advertising of this unique product until we could talk in terms of a **field-proven** unit. Now, we can.

"Buffalo" Air Cooled Condensers have been installed on a wide variety of applications. Reports from actual users now prove their highly efficient and economical operation. They provide complete freedom from operating difficulties. Service requirements are reduced to an absolute minimum.

These field reports prove beyond all doubt that the new "Buffalo" units have eliminated the difficulties common to most air cooled condensers.

Only "Buffalo" Air Cooled Condensers Bring You All These Advantages:

VERTICAL DISCHARGE—is not affected by wind velocity—holds compressor on line.

EASY-TO-INSTALL—shipped as factory-assembled packages. Lifting eyebolts simplify rigging.

LOW SILHOUETTE—the No. 1000 unit is only 76" high.

OPPOSED BLADE BY-PASS DAMPER CONTROL AVAILABLE—provides close modulating control not possible with parallel-blade dampers—or with "flooded coil control". Saves expensive refrigerant.

UNIT CASINGS—heavy-gauge galvanized steel construction insures durability, long life.

AMPLE CAPACITIES—Standard sizes from 7½ to 100 tons based on 120° condensing temp. 40° suction, 100° ambient. Larger sizes for special refrigerant, liquid or gas cooling applications available as factory-assembled packages.

Applications of "Buffalo" Air Cooled Condensers include air conditioning and steam condensing . . . also jacket water cooling of diesels, package compressors, gas turbines, electronic tubes, power transformers, process liquids, heat pumps.

For the utmost in reliable performance, new "Buffalo" Air Cooled Condensers are your best choice. Call your nearby "Buffalo" engineering representative for complete facts. Or write us direct.

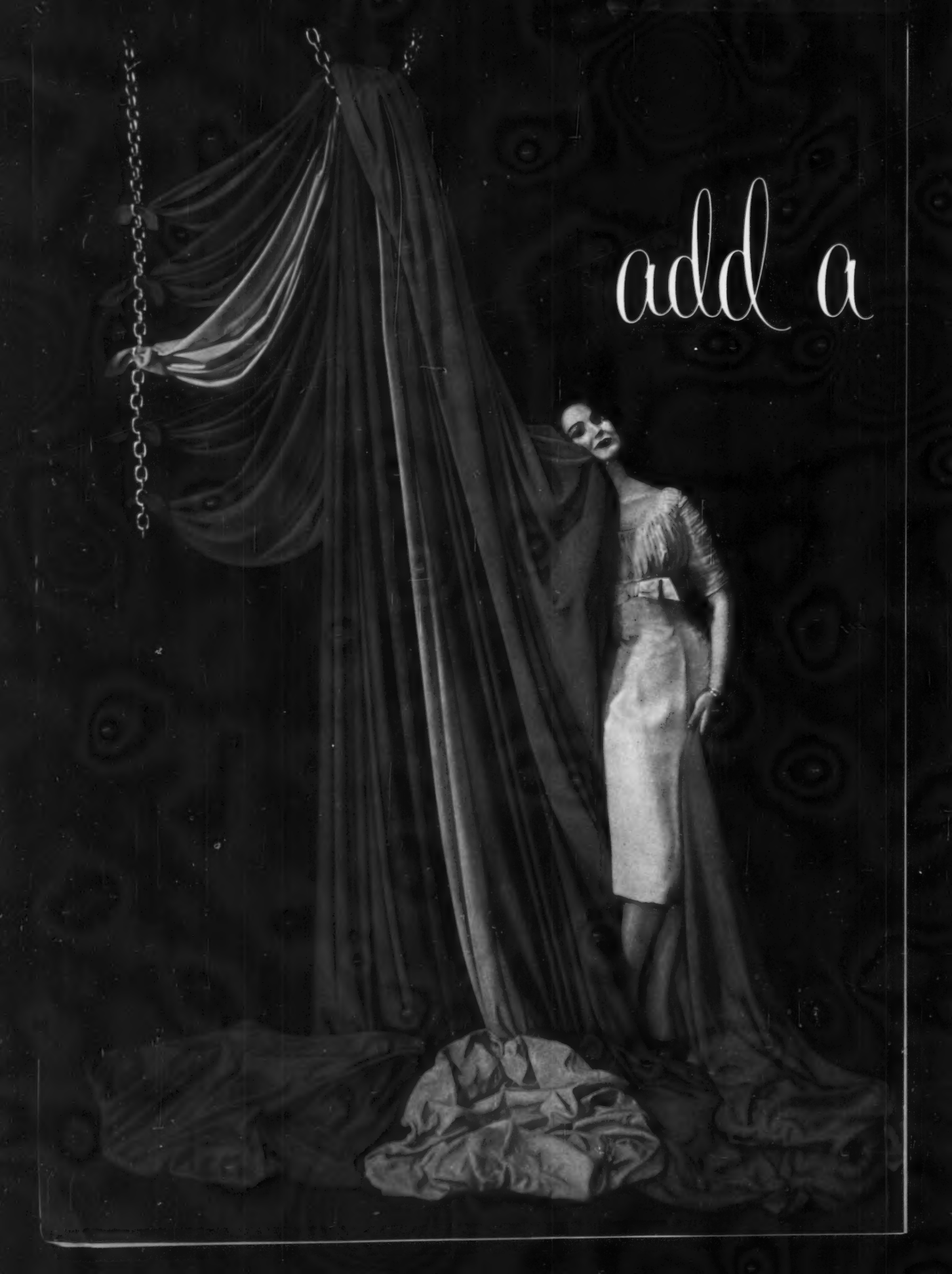
"Buffalo"

BUFFALO FORGE COMPANY Buffalo, N. Y.

Buffalo Pumps Division, Buffalo, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING • FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING


add a

touch of luxury

National® LANAMID®

Neutral Premetallized Dyes

IMPROVE THE HAND, PRESERVE SURFACE EFFECTS!

Neutral dyeing . . . foreshortened dyeing cycles! What a story that tells dyers of wool, nylon and modified acrylics!

Lanamid Dyes upgrade your fabrics by protecting the inherent good qualities of the fiber. Wools and precious fibers retain their luxurious hand. Surface textures are at their very best!

Although they exhaust rapidly, Lanamid Dyes build up evenly. They're extremely level even on tightly woven gabardines. And varying grades of wool dye uniformly without producing heathery effects.

The soft, muted tones of Lanamid Dyes, their high average fastness, similar working properties and exceptional reproducibility make them ideal for difficult-to-dye mode shades.

They are also highly recommended for carpeting and upholstery, rubberized materials, unions and blends, and especially for continuous raw stock dyeing.

for acrylic blends... NABOR DYES*

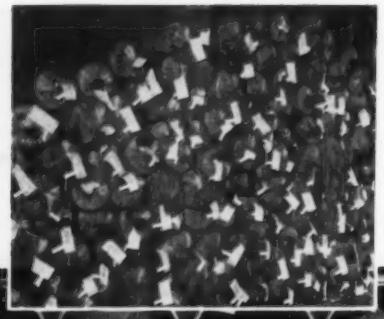
NABOR Dyes comprise a new range developed by National Aniline for acrylic fibers. They are very useful in conjunction with Lanamid Dyes for cross-dyeing blends.

For additional data and samples of Lanamid and Nabor Dyes, contact the National Aniline office nearest you.

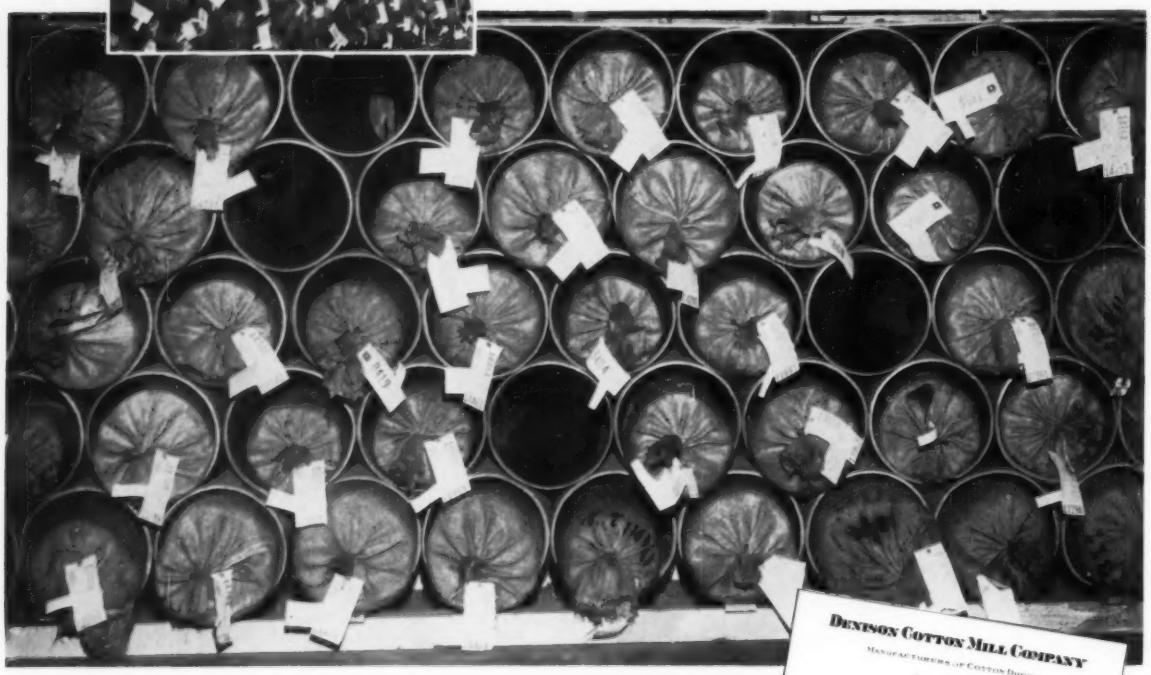
NATIONAL ANILINE DIVISION
40 RECTOR STREET, NEW YORK 6, N. Y.
Atlanta Boston Charlotte Chicago Greensboro Los Angeles
Philadelphia Portland, Ore. Providence San Francisco
In Canada: ALLIED CHEMICAL CANADA, LTD., 100 North Queen St., Toronto 14

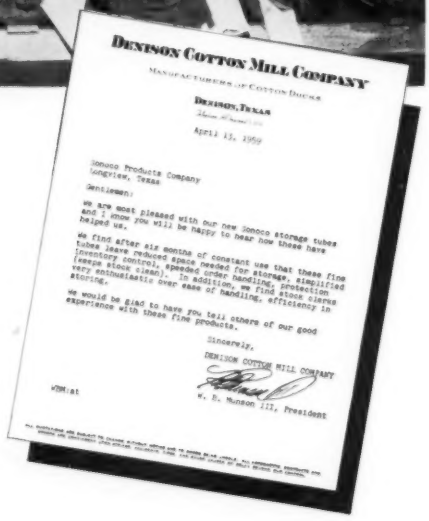
Allied Chemical

*Nabor is a trademark of Allied Chemical



Solve fabric storage problems . . .





DENISON COTTON MILL COMPANY

MANUFACTURERS OF COTTON DUCKS

DENISON, TEXAS

April 13, 1959

Sonoco Products Company
Longview, Texas

Gentlemen:

We are most pleased with our new Sonoco storage tubes and I know you will be happy to hear how these have helped us.

We find after six months of constant use that these fine tubes leave reduced space needed for storage, simplified inventory control, speeded order handling, protection (keeps stock clean). In addition, we find stock claims very enthusiastic over ease of handling, efficiency in storing.

We would be glad to have you tell others of our good experience with these fine products.

Sincerely,

DENISON COTTON MILL COMPANY

W. B. Munson III, President

WBM:at

Low cost method saves time!

Sonoco Storage Tubes provide convenient unit storage of roll fabrics to save handling time, installation costs and storage space.

The Sonoco Storage Tube method protects fabric from pile crush. It also permits efficient inventory control. Installations can be easily expanded or moved.

Costing far less per unit than wood or metal racks, Sonoco Storage Tubes are available for prompt delivery in any quantity in diameters up to 36″ I.D. and in lengths to meet your needs. Sonoco textile sales engineers have complete information on this product—or, write our nearest plant office.

SONOCO

Storage Tubes

SONOCO PRODUCTS COMPANY

Main Plant—Hartsville, S. C.
Mystic, Conn.
LaPuente, Cal.
Fremont, Cal.
Lowell, Mass.
Longview, Texas
Akron, Ind.
Phillipsburg, N. J.
Philadelphia, Pa.
Atlanta, Ga.
Brantford, Ontario
Granby, Quebec
Mexico, D. F

756

IF YOU WANT COMPLETE SAFETY IN YOUR SAFETY SWITCHES— REMEMBER THE "V" FOR VISIBLE BLADES!

The men who pull the switches will tell you what can happen when a switch, *believed* to be open—*isn't.* A lot of things can happen—and every one of them is bad. Personnel safety is in jeopardy. Motors can single-phase. Machinery and work can be damaged. Down-time can skyrocket.

Doesn't it make sense to insist on Visible Blade construction which gives you a road block against any of those possibilities? Doesn't it make equally good sense to insist on the safety switch which gives you that construction—plus a lot of other performance advantages?

NEW! TYPE LD SWITCH

Quality Features at Low Price

- ✓ Spring-operated quick-make, quick-break
- ✓ Box lugs. Easy to wire No looping
- ✓ Compact enclosure, yet lots of wiring space
- ✓ Positive pressure (spring loaded) fuse clips
- ✓ Full horsepower ratings

EC&M HEAVY INDUSTRY ELECTRICAL EQUIPMENT...NOW A PART OF THE SQUARE D LINE

SQUARE D COMPANY

COST CUTTERS!

Small as they are, National-Sterling Ring Travelers can help you make important production savings... help cut your spinning and twisting costs to a minimum. There are two good reasons.

First . . . yarn quality. On job after job — in major mills everywhere — National Travelers consistently deliver more pounds of *first class* yarn at higher spindle speeds. Then, too, National Ring Travelers enable you to achieve optimum spinning and twisting efficiency by eliminating frequent and costly "ends down". Every traveler in every box you order is absolutely uniform in weight, dimensions, temper and finish to assure you smooth, trouble-free performance . . . true operating economies.

It will pay you to talk over the cost-cutting features of National-Sterling Ring Travelers with your nearby National Engineer. Whether you're running cotton, wools, synthetics or blends, he'll be happy to help you select the *right* traveler. For prompt service, write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I. Southern Office and Warehouse: P. O. Box 293, Gaffney, South Carolina.

NATIONAL
Sterling
RING TRAVELERS

F. L. CHASE, JR., *Pres. & Treas.* L. E. TAYLOR, *Southern Mgr.*

FOR SPINNING AND TWISTING ALL NATURAL AND SYNTHETIC FIBRES

There's a NATIONAL man nearby!

H. B. ASKEW	T. H. BALLARD	F. S. BEACHAM	C. L. FITTS	J. T. GREENLAW
P. O. Box 424	112 N. 9th St.	P. O. Box 511	2205 St. Mark Rd.	Glen Haven Circle
Griffin, Ga.	Belmont, N. C.	Hones Path, S. C.	Greensboro, N. C.	Saco, Maine

Export Agent: A. M. ROMERO CORP., 350 Fifth Avenue, New York 1, N. Y.

SHORTS & REMNANTS

(from page 12)

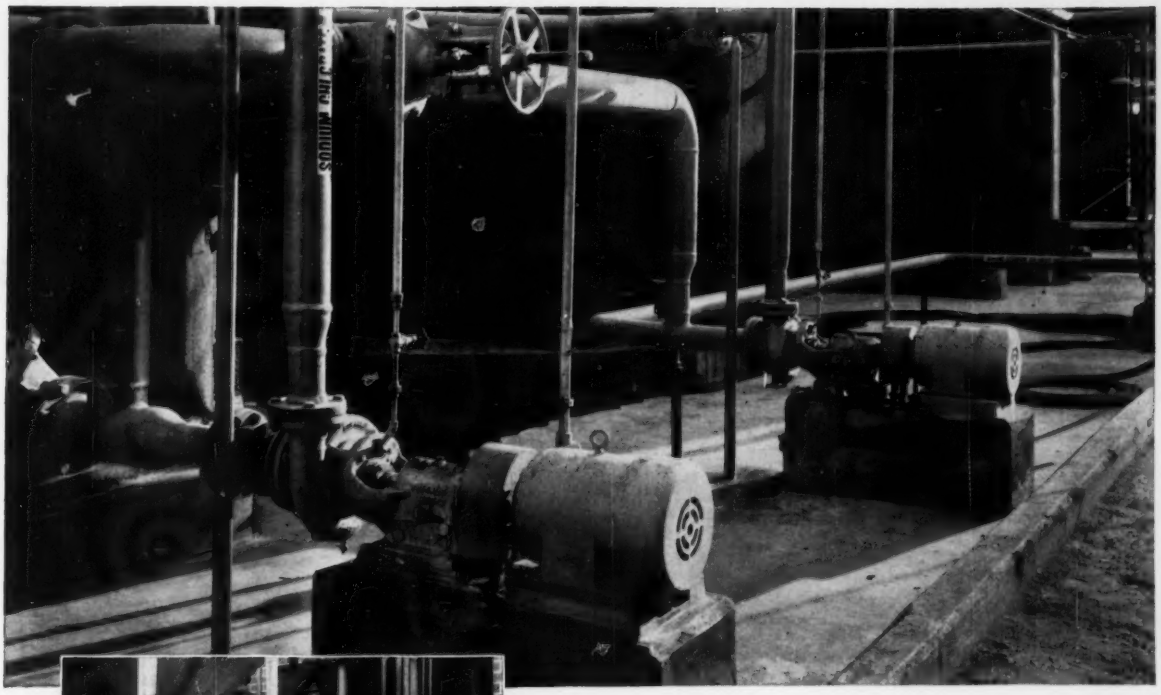
keep asking for copies of TI's chart, "Properties and Uses of the Man-Made Fibers" (it appeared in our August issue). Among those asking in the last couple of weeks were **Charles C. Boley,** James Lees & Sons Co., Glasgow, Va.; **James E. Flegal,** Peerless Woolen Mills, Rossville, Ga.; **C. T. Sutherland,** v-p, Madison Throwing Co., Madison, N. C.; **Harry Goldstein,** pres., American Velour Mills, Inc., Bound Brook, N. J.; **A. von Planta,** Hudson Cotton Mfg. Co., Hudson, N. C.; **R. Schutz,** Centre de Recherches Textiles de Mulhouse, France; **Bert Shapiro,** Peter Pan Foundations, Inc., NYC; **A. Bickford,** asst. yarn supt., Canadian Celanese Ltd., Sorel, P. Q.; **L. C. Stilp,** gen. PA, Kimberly-Clark Corp., Neenah, Wis.; **D. Gelderman,** mill supt., Bruck Mills (Australia) Ltd., Wangaratta, Australia; **Norman Loring,** owner, Rancocas Fabrics, Riverside, N. J.; **Charles J. Glenn,** tech. coordinator, Abbeville Mills Corp., Abbeville, S. C.; **Jim Rutledge,** Hatch Mill, Columbus, N. C.; **Frederick Kogos,** publisher, *Apparel,* NYC; **T. C. Pampuch,** Verein Deutscher Ingenieure, Dusseldorf, Germany; **A. Goldfarb,** United Merchants & Manufacturers, NYC (second request—"We have had a flood of correspondence from all of our affiliated mills . . ."); and **N. Terry Munger,** J. Walter Thompson Co., NYC.

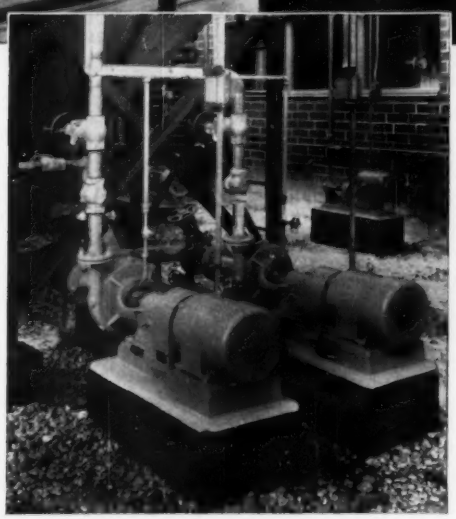
Mr. Munger asks if we mean "trademarks" or "trade names" in "Trademarks of Man-Made Fibers and Yarns," which appears on the reverse side of our fiber-properties chart. Well, we mean "trademarks," according to the following definition:

"A trademark relates to a commodity and is synonymous with a brand name. A trade name relates to a business and is synonymous with a company name." That comes from "Trademark Management," published in New York in 1955 by the U. S. Trademark Association.

Ad Man's Lament

Why is it: A man wakes up in the morning after sleeping under an advertised blanket on an advertised mattress and pulls off advertised pajamas. Takes a bath in an advertised tub, shaves with an advertised razor, washes with an advertised soap, puts on advertised clothes, sits down to a breakfast of advertised coffee, puts on an advertised hat, rides to his office in an advertised car, writes with an advertised pencil . . . Then





Above — "Buffalo" Single Suction Full Ball Bearing Pumps, stainless steel construction, handling sodium chlorate.

CORROSION— CONTAMINATION CONTROLLED WITH "BUFFALO" PUMPS

At left — "Buffalo" Single Suction Pumps of stainless steel construction handling hydrogen peroxide bleach.

Using a wide range of materials of construction, "Buffalo" offers a line of pumps capable of handling your toughest liquid moving job. You can order a "Buffalo" pump made of Hastelloy B or C, nickel, bronze, lead, stainless, in fact just about any material that can be cast and machined.

Properly applied, these pumps can cut your liquid moving costs, reduce down-time due to pump failure and improve quality control where contamination may be a factor.

For your tough liquid moving jobs, phone or write your "Buffalo" Engineering Representative or write direct. Tell us the liquid you want to pump and we will be pleased to suggest the best material of construction for the job.

"Buffalo" PUMPS

BUFFALO PUMPS DIVISION OF BUFFALO FORGE CO.

175 Mortimer Street Buffalo, N.Y.

Canada Pumps Ltd., Kitchener, Ont. Sales Representatives in all Principal Cities

A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

are you struck by STATIC?

The SIMCO "*Midget*" electronic static eliminator is *guaranteed* to end your static problems . . . safely, inexpensively . . . in all textile applications. The "*Midget*" consists of a power unit and one or more static bars, designed to fit any machine. Anti-static cleaning devices and meters for locating and measuring static are also available.

Equip your machinery now.

the SIMCO company
920 Walnut Street, Lansdale, Pa.

SHORTS & REMNANTS

(from page 22)

he refuses to advertise, says advertising doesn't pay, and then if a business isn't good enough to advertise . . . he advertises it for sale.

Oldest Reader?

"Please enter my subscription for 1960 . . . I don't want to miss an issue . . . I first subscribed to your magazine when it was called *Cotton*, back in 1900, and I've been reading it

". . . everybody worked."

ever since. For years it helped me to superintend a mill. Things are much different now—in those days there was child labor, everybody worked."

JOHN F. LEHMAN

Paint Rock, Ala.

► Can any subscriber beat Mr. Lehman's record for continuous readership of TI? He couldn't be beaten by very much—our first issue was published in 1898.

Shirt Tale

Liondale Shirt Co. of New York is marketing a blue rayon challis shirt with a heart embroidered on the shirt tail. The price is $5 each. But anyone who buys a set of two—promoted as "His and Hers"—will get a real bonus: a paperback copy of the unexpurgated version of "Lady Chatterley's Lover."

Buyers' Market

Paul Homier, who was superintendent of the former Callon Division (nonwoven fabrics) of Callaway Mills (he's now superintendent of Callaway's Valway Plant), swears that the following letter was received from a customer:

"I have evaluated the cotton fabric you submitted and believe it shows great promise, however, there are a few changes listed below in order of their importance:

"1. The price must be reduced at least 10¢ [the list price was 20¢].

"2. The thickness is not bad, but should be increased from 15 to 20 mils.

"3. It has to be much stronger.

"4. The hand is too harsh, it should be much softer and more flexible.

"5. It must be whiter.

"6. If volume sales are to be made, it must contain a large percentage of nylon for advertising purposes.

"7. Weight is not too important, you can go twice as heavy, if necessary, maybe even higher.

"Now you have the problem, it is up to you and your staff! Can we expect a sample next week? We must move fast, or we'll miss the season. This should be a big volume business, and you should plan to keep a large stock on hand for us."

A CUSTOMER

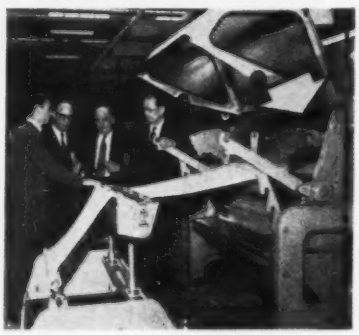
Ill Wind

To designer Augusta Bartholomew Dillon the late unlamented Hurricane Gracie was not an ill wind. She said she has sold a design based on Gracie's whirling eye to a manufacturer of rugs and carpets. And they won't be flying carpets.

► We should all be grateful to hear that woolens and worsteds can now be permanently mothproofed simply and economically. According to the Wool Bureau, you just treat the goods with hexachloroepoxyoctahydroendo-exodimethanonaphthalene.

This Machine Age

An observant reader sent us this picture, taken from the *Dyer*, an English publication.



Drawing our attention to the man inside the machine, our reader says that the only explanation he can think of is that employees at the British Rayon Research Association (where the photo was made) really throw themselves into their work.

► MERRY CHRISTMAS to all and to all a good 1960!

Picker Overhauling Is Simple When You Depend On . . .

Aldrich Repair Service

We furnish skilled men for reworking pickers, and can deliver to these men any needed parts within 24 hours in most southern states, and within 48 hours to almost any cotton mill in the United States. This makes thorough overhauling a simple matter. Anything needed for a good job can be had at once, while the machine is down for repairs.

If you do your own overhauling, this speedy delivery service is just as valuable. You don't have to wait for repair parts — they are there when you want them.

We manufacture and install complete blending, opening, and picking systems for cotton and synthetics, and cleaning systems for cotton.

Aldrich Machine Works

Greenwood, South Carolina

BOBBIN TROUBLE?

Simmer down! Monticello's bobbin specialists are ready to help, day or night!

If you have bobbin troubles, help is only as far away as your telephone. Your call will bring Jamie Ellington, Bobbin Consultant and Textile Engineer to your mill on the double.

Jamie will diagnose the problem and call Ernest Key, Jr., Bobbin Specialist and Executive Vice President of Monticello Bobbin. Ernest will have bobbins manufactured immediately, as prescribed by Jamie Ellington.

Ernest Key, Jr.

Jamie Ellington

Every attempt will be made to utilize your present bobbins. Ways to add up to 15% on packages will be suggested. Sticking and loose bobbin problems will be solved.

Monticello can design bobbins for style changes or new equipment. Anti-sloughing quill grooves and quill bunch position rings also available.

This is Monticello's "Instant Bobbin Service"!

MONTICELLO SUPPLIED THE FIRST ROVING BOBBINS FOR 14 X 6½ FRAMES IN SOUTHERN MILLS

Monticello Bobbin Company

MONTICELLO, GEORGIA

South's only COMPLETE Bobbin Manufacturer

We SERVICE and Sell Direct

P. O. Drawer 230 Phone 2111 - 2121 Monticello, Georgia

PERSONAL NOTES

Newly elected officers of the North Carolina Textile Manufacturers Association are: president—**J. C. Cowan, Jr.,** vice-chairman of the board of Burlington Industries, Inc.; first vice-president—**Donald R. Jonas,**

Mr. Jonas and Mr. Cowan

Mr. Ingram and Mr. LaFar

executive vice-president of Johnston Mills Co.; second vice-president—**D. R. LaFar, Jr.,** head of LaFar Mills; executive vice-president—**Thomas N. Ingram.**

W. G. Humphrey has assumed his responsibilities as manager of the Gayley Mill Corp. in Marietta, S. C. Mr. Humphrey, who was formerly at Judson Mills in Greenville, S. C., succeeds **R. C. Owens** who has resigned.

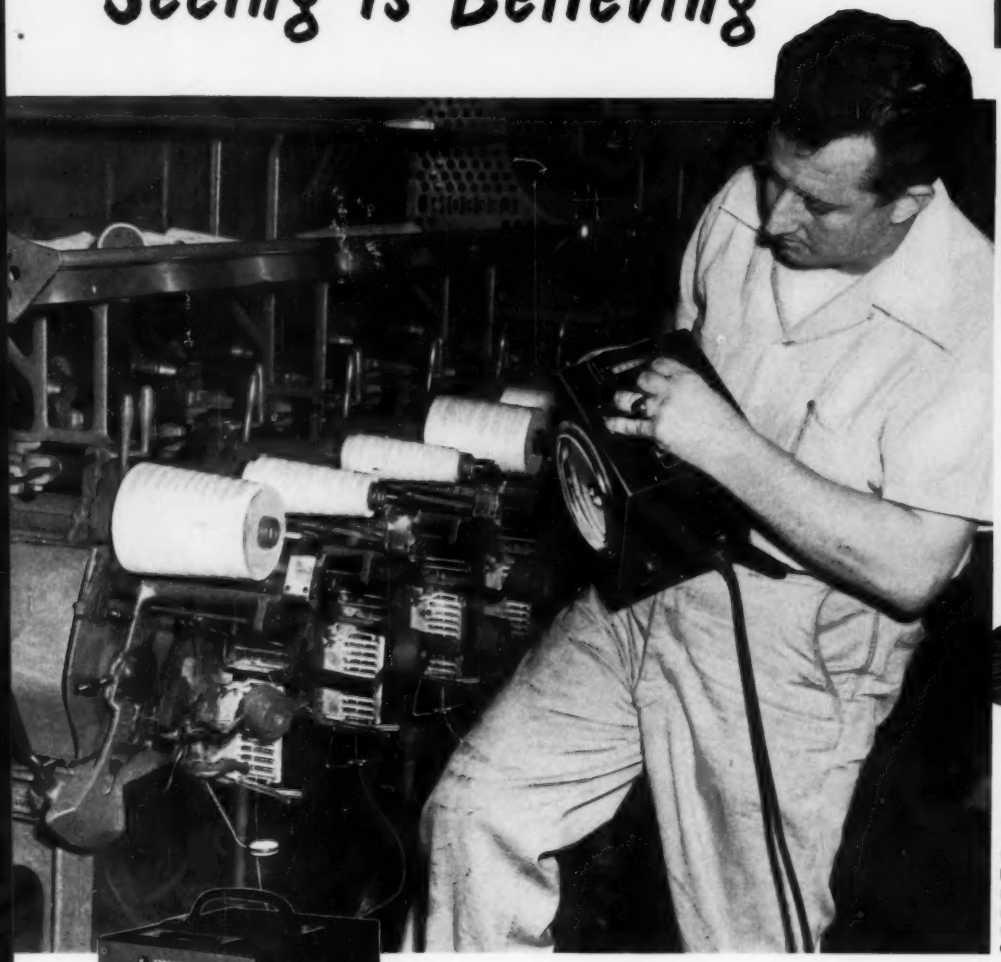
Curtis H. Edwards, chairman of the production management board of Hanes Hosiery Mills Co., Winston-Salem, N. C., and superintendent of boarding processes, has retired.

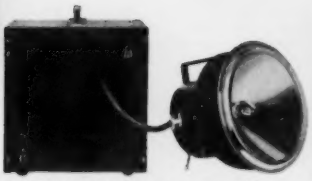
Ned E. Howell has been appointed superintendent of the woolen division of Clover Mills, Inc., Douglasville, Ga.

Archie W. Shuford, general man-

Continued on page 30

Seeing is Believing





Type 648-A Strobolux® . . . . $300.

High-intensity white-light source 100 times brighter than the Strobotac — Flashing rate up to 6000 per minute — Can be used for single-or multiple-flash photography — Must be controlled by a Strobotac.

Type 1532-C Strobolume . . . . $315.

High-intensity white-light source 400 times brighter than the Strobotac — Used primarily for study of low-speed machinery — Flashing rate up to 1200 per minute and with reduced intensity to 3000 per minute — Controlled by a Strobotac or any make/ break mechanism.

Type 631-BL Strobotac® . . . . $170.

Flashing range from 60 to 14,400 rpm, useful from 300 rpm to 100,000 rpm for slow-motion studies — Accuracy ±1% over most of range — No mechanical or electrical contact is necessary with object under observation — Operates from 115v a-c line.

With the Strobotac,® you can actually *see* rapidly moving machine parts in operation. Stroboscopic light makes these parts appear to move in slow motion, or shows them in an apparent stopped position, permitting irregularities to be seen. Maladjustments or worn parts are quickly and easily detected.

The Strobotac is also an accurate electrical tachometer. Critical speeds of spindles, pickers, and ring travellers can be quickly checked. The operator simply adjusts a single knob which controls the Strobotac's rate of flash — when motion is stopped, he notes speed on an illuminated drum dial calibrated directly in rpm.

For illuminating larger areas, the Strobolux, an auxiliary light source, is available. The Strobolume, an even higher intensity stroboscopic instrument, is designed for studies of looms and other low-speed machinery.

Strobotac, Strobolux, or Strobolume — whichever you need — can help you reduce rejects. More important, these instruments can prevent serious damage and costly shutdowns.

GENERAL RADIO COMPANY

WEST CONCORD, MASSACHUSETTS

NEW YORK, WOrth 4-2722 District Office in Ridgefield, N. J. WHitney 3-3140	CHICAGO Oak Park Village 8-9400	PHILADELPHIA Abington HAncock 4-7419	WASHINGTON, D.C. Silver Spring JUniper 5-1088	SAN FRANCISCO Los Altos WHitecliff 8-8233	LOS ANGELES Los Angeles HOllywood 9-6201	IN CANADA Toronto CHerry 6-2171

Announcing the New Dayton

Golden Thorobred Drop Box Picker

Amazing Synthetic Picker Lasts Up to 10 Times Longer, Multiplies Loom Savings!

You can now enjoy tremendous savings in loom downtime and picker replacement cost, with *new* Dayton-made Golden Thorobred Drop Box Pickers. During long, thorough testing, Golden Thorobred Drop Box Pickers have operated up to 10 times longer than conventional pickers, and in many cases are still running.

Furthermore, Golden Thorobreds require no oils or dressing . . . they won't abrade the picker stick, thereby extending its life . . . and they have an almost perfect cushioning action that preserves the shuttle from wear.

Because of their shock-absorbing resilience, Golden Thorobreds, too, help greatly to diminish the noise level on looms. And when a changeover does become necessary, Golden Thorobreds box with notable ease . . . for your further savings in labor and downtime.

Cleaner, cooler, quieter, longer running . . . Dayton Golden Thorobred Drop Box Pickers assure you outstanding performance and remarkable savings. Enjoy these new, high standards of wear-resistant operation . . . the result of six years of Dayton research and testing in synthetic elastomers. Golden Thorobreds are now available at your local Dayton jobber's . . . or write The Dayton Rubber Company, Textile Division, 401 South Carolina National Bank Building, Greenville, S. C.

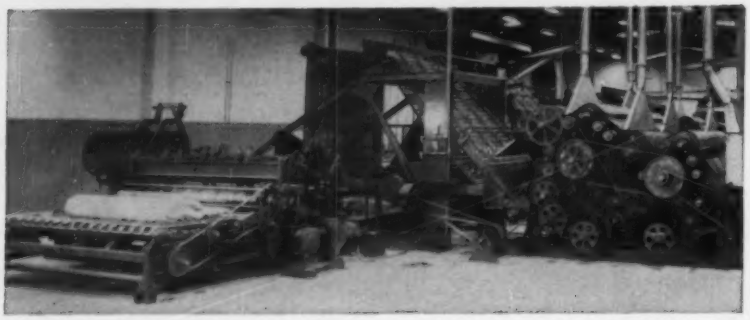
Dayton Rubber

Dayco and Thorobred Textile Products for Better Spinning and Weaving

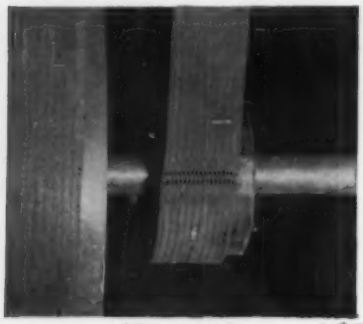
OVERSEAS PLANT, THE DAYTON RUBBER CO. LTD., DUNDEE, SCOTLAND

"ENDLESS APRONS ARE HARD TO INSTALL"

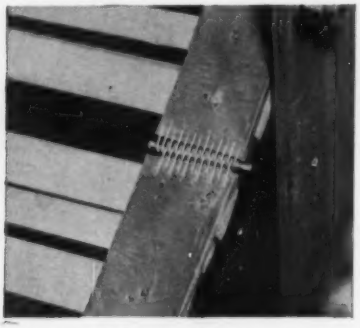
says E. M. HYDE, Project Engineer at Proctor & Schwartz, Inc.



A complete batt making line used in the manufacture of cotton batt for top quality mattresses. The unit is designed and built by Proctor & Schwartz of Philadelphia, Pa.



Close-up of Clipper lacing used on drive belt of feed in batt making line



Close-up of Clipper lacing used on a traveling apron in the line

CLIPPER Joints ease installation problem, are as flexible and durable as the belt itself

Feed belts and drive belts are easy to install when Clipper laced. Joints as smooth and durable as the belt itself are easily made by one man using Clipper method. Clipper lacers develop up to 45,000 pounds of pressure to imbed specially designed Clipper steel wire hooks flush with the belt. The strain is evenly distributed across the width of the belt so that the joint is smooth and durable. It operates well on both small and large diameter rollers.

When you have two ends to join, chances are you can join them easier with Clipper hooks and lacers. Any type of belting material in various widths and up to 13/32 inch thick can be laced faster and better by Clipper.

For more information — Detailed product information and case history examples of Clipper machine lacing benefits are contained in Bulletin No. 157. Send for your free copy today.

Ask your Industrial Distributor for Clipper Products

Clipper BELT LACER COMPANY

980 Front Ave., N. W., Grand Rapids 2, Michigan

PERSONAL NOTES

(from page 26)

ager of Whiting Hosiery Mills, Inc., Hickory, N. C., has been elected to the board of directors of the National Association of Hosiery Manufacturers to fill the unexpired term of Nathan M. Ayers, who has resigned.

Linton C. Reynolds of Riegel Textile Corp., Ware Shoals, S. C., has been named chairman of the Piedmont Section of the American Association of Textile Chemists & Colorists. **Vincent B. Wright, Jr.,** of North Carolina Finishing Co., Salisbury, N. C., was elevated to vice-chairman, and **Richard E. Rettew** of Polymer Southern, Greenville, S. C., was elected secretary.

Neal A. Truslow, manager of new product development in the textile division of U. S. Rubber Co., Winnsboro, S. C., was recently awarded an associateship and **John Dean,** superintendent of the dyeing and finishing departments at Canadian Celanese, Ltd., Drummondville, Que., a licentiateship by the Textile Institute of England.

Raymond J. Fontaine, Jr., has been appointed general merchandise manager of the spun synthetics division of The American Thread Company. Mr. Fontaine was formerly associated with Randolph Mills, Inc.

Cameron A. Baker, formerly manager of the textile research department at U. S. Testing Co., has accepted a position as director of research and development at Better Fabrics Testing Bureau of New York.

At Callaway Mills Co., LaGrange, Ga., **Joe E. Spearman** has assumed his duties in the research and development division as product development engineer. * * * **Ray C. Anderson,** formerly associated with The Hartsville (S. C.) Cotton Mill, has joined the engineering department as industrial engineer.

Coats and Clark, Inc., has announced the promotion of **P. B. Stephens** to manager of the Clarkdale (Ga.) Mill succeeding **P. E. Hilley** who is being trained in the New York office for another position in the southern operations of the company.

Craftsmen Finishers, Inc., Concord, N. C., has named **Ray W. Connell** su-

Continued on page 34

RESLOOM, STYMER, LYTRON: REG. U. S. PAT. OFF.

the frugal finisher's friend: "AC" catalysts

Here's how Monsanto AC Catalysts give you better results for less: 1) longer resin bath life; 2) faster, more complete curing of melamine, urea and other thermosetting resins; 3) with minimum resin add-on. There's less danger of amine odor formation or residual formaldehyde. And AC Catalysts are compatible with practically all modifying agents. Keep your finishing costs down—*safely*—with AC Catalysts and other Monsanto textile chemicals. For complete technical data on AC catalysts, write Monsanto Chemical Company, Plastics Division, Room **1203,** Springfield 2, Massachusetts.

Monsanto

Other outstanding Monsanto textile chemicals include: Resloom E-63 chlorine resistant resins; Resloom E-50 cyclic urea resin; Resloom HP and M-75 melamine resins; Stymer sizes; Lytron polystyrene latices

Any dyer, purchasing agent, chemist or mill official knows the value of purity — in both the purchasing of raw materials and the processing of the finished product.

Take salt, for example. About one-half its cost is freight! So, they say: "Why pay for shipping unwanted impurities?" And the fact is — you can't buy a purer rock salt than Jefferson Island.

For all salt needs — rock or CMF (Calcium Magnesium Free) — most companies call The Man from Diamond Crystal. Why don't you? He has the facts, the proof, the service.

Diamond Crystal Salt Co., St. Clair, Michigan

Plants located at Akron, Ohio;
Jefferson Island, Louisiana; St. Clair, Michigan.

Jefferson Island DIV.

DIAMOND CRYSTAL SALT CO.

For further information use Handy Return Card, Page 167

PERSONAL NOTES

(From page 30)

perintendent of the receiving, grey, and preboarding departments. Mr. Connell was previously associated with Phoenix Hosiery Co.

R. Houston Jewell, vice-president of Crystal Springs Bleachery, Chickamauga, Ga., was elected president of The Textile Education Foundation, Inc., during the organization's recent annual meeting at the A. French

Textile Education Foundation president Jewell (left) accepts the shuttle that is symbolic of leadership in Georgia textile organizations from retiring president Henry W. Swift, president of Swift Spinning Mills, Columbus. Looking on is Frank L. Carter who was re-elected secretary.

Textile School of the Georgia Institute of Technology, Atlanta, Ga. Named treasurer was **Hansford Sams, Jr.,** assistant president of Scottdale (Ga.) Mills. **Thomas H. Quigley,** director of the Industrial Education Department at Georgia Tech, received a warm tribute and expression of appreciation from members of this non-profit organization which was formed by Georgia textile mills in

James A. Byars (left), manager of the Eagle & Phenix Division, Reeves Bros., Inc., Columbus, and chairman of the Textile Vocational Advisory Committee of the Textile Education Foundation, Inc., presents the check to Mrs. Quigley as Mr. Quigley happily looks on. Applauding in the background is J. M. Cheatham, president of Dundee Mills, Griffin, and re-elected vice-president of the Foundation.

Mr. Duerst

Mr. Colcolough

Mr. Phillips

Mr. Menti

1943 to aid in the development and improvement of facilities for higher textile education and to promote enrollment in textile schools. Mr. Quigley was praised for his devotion to the vocational education program in Georgia and for his service to the textile industry.

R. Donald Menti has been named manager of management engineering for the textile division of the United States Rubber Co. Designated to replace Mr. Menti as manager of Latex Fiber Industries, Inc. (a U. S. Rubber subsidiary in Beaver Falls, N. Y., which produces latex-impregnated or bonded-fiber materials), was **Samuel R. Phillips** who had served as assistant general manager of the textile division since 1951. **A. H. Jackson, Jr.,** has been appointed administrative assistant to the production manager of the textile division, with headquarters at Winnsboro, S. C. Previously Mr. Jackson had been manager of management engineering at Winnsboro. * * * **Robert B. Fort, Jr.,** has been promoted from assistant production manager to plant manager of the Winnsboro Mills.

Union Bleachery, Greenville, S. C., has announced the promotion of **Ted Colcolough** to supervisor of titration in the dye department.

John Duerst, a research engineer in the Clarkdale, Ga., Mill of Coats & Clark, Inc., has retired after more than 35 years service. (Mr. Duerst has contributed a number of articles to TEXTILE INDUSTRIES, and many readers will remember the Duerst formulas for yarn strength, twist, cross section, etc.—The Editors.)

Charles Bernstein has assumed his responsibilities as assistant vice-president at Rock Hill (S. C.) Printing & Finishing Co. In his new assignment Mr. Bernstein will assist the executive vice-president and will be in charge of the liaison work between the New York and Rock Hill offices.

Several reassignments of responsibilities have been announced by Abbeville (S. C.) Mills Corp. as follows: **John W. Broome** has become product manager for men's wear; **Richard T. Bruce** has been named production control manager; **William C. Gilmore** has been made product manager for sales yarn; **Richard E. Norwood** has assumed his duties as product manager for sports wear; **Charles Palmer** has been named grey mill technical superintendent, and **Harris Thompson** has taken over the responsibilities as supervisor of apparel fabrics department.

Ed Jurczak of Burkart-Schier Chemical Co. was named chairman of the South Central Section, American Association of Textile Chemists and Colorists, at the annual fall meeting held in Chattanooga, Tenn. **R. J. Tyrrell** of Peerless Woolen Mills was elected vice-chairman; **Lowell Shive** of Arnold, Hoffman & Co., Inc. was named secretary; and **W. J. Welborn** of Riegel Textile Corp., Trion, Ga., was elected treasurer.

Nathan M. Ayers has been elected executive vice-president and treasurer of Highland Cotton Mills, Inc., High Point, N. C. Mr. Ayers was formerly president of Triangle Hosiery Co.

Harvey N. Young has been named superintendent of boarding and dyeing processes at Hanes Hosiery Mills Co., Winston-Salem, N. C., succeeding **Curtis H. Edwards,** who has retired.

Frank E. Willsher, president of the Schlichter Jute Cordage Co., Philadelphia, Pa., has been named chairman of the board of directors. **William A. Dungan,** formerly executive vice-president, has been elected president of the firm. **Fred R. Crowell,** president of Delaware River Jute Mills, Inc., has been elected to the board of directors.

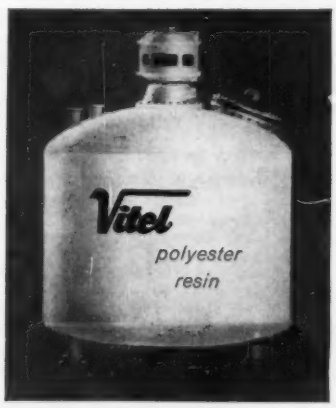
Fred C. Davis has been made su-

Continued on page 36

Vitel

*means "Freedom"**

"Fiber of Freedom"—that's what they're calling the new synthetic fiber made from VITEL, revolutionary polyester resin by Goodyear Chemical Division. The fiber: VYCRON, just announced by Beaunit Mills, Inc., Fibers Division. This teamwork—between the chemical and textile industries—opens exciting new possibilities in the world of fabrics. It means new freedom of operation for the textile industry—new sales-starting features for the retailer—new value for the consumer.



Properties of fiber spun from VITEL:

- *Exceptional yarn strength—good fiber-to-fiber cohesion.*
- *Outstanding dyeability and colorfastness.*
- *Excellent wrinkle-resistance—ideal for wash-and-wear.*
- *Easy processability on standard spinning systems.*

For details, write: GOODYEAR, CHEMICAL DIVISION, DEPT. L-9439 AKRON 16, OHIO

GOODYEAR

CHEMICAL DIVISION

Vitel—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio
Vycron—T. M. Beaunit Mills, Inc., Fibers Division

*NEW FREEDOM TO WEAVE A WIDER RANGE OF WONDER FABRICS

USP PALLETAINERS®

Typical of the custom-built Textile Palletainers, these units are equipped with half-side, drop-gate for easy accessibility to contents and caster mounted for easy floor maneuverability.

Another interesting example is this (26"x38"x32") unit—selected by several plants as the best "standard" size for general floor operations.

NOW

CUSTOM-BUILT for the TEXTILE INDUSTRY

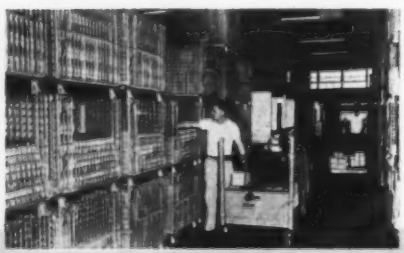
Lightweight Sizes and Types to Meet All Needs for Processing, Storage, Interplant Transport and Shipping
Special Snag-Proof Finishes Over Steel Mesh
Safe Stacking . . . Fold-Down and Castered Models

TEXTILE PALLETAINER Applications are Unlimited!

- Contents always visible—always protected
- Stack safely—save floor space
- Higher Capacities—less tare weight
- Smooth, sturdy steel mesh—special plastic, lacquer or paint finishes
- Drop sides, ends or gates—accessibility
- Reinforced deck base—safe lift truck handling
- Fold-down features for freight savings

USP Palletainers are available in pre-engineered, custom-built models to meet Textile Industry application requirements.

Textile Palletainers offer modern container advantages plus unit-handling methods, safety, special protective finishes—and the simplicity of space-saving storage or rapid movement and shipment of unitized loads. Textile Palletainers are rapidly revolutionizing handling methods for in-work storage of cones, springs, quiller bobbins—even delicate yarns. Palletainers, with protective liners, have proven invaluable for threads through all stages of wet and dry finishing, storage and shipment.



This plant saves valuable floor space by stacking their Textile Palletainers during processing and storage operations.

Write Today... for complete information and prices on USP Textile Palletainers to meet your need.

Regular Heavy Duty Hi-Lode Palletainers are immediately available in a wide range of standard sizes, types and capacities to 6000 lbs. per unit.

PALLETAINERS ARE MANUFACTURED EXCLUSIVELY BY:

UNION STEEL PRODUCTS CO.

530 N. BERRIEN ST. ALBION, MICHIGAN

Manufacturing plants also in Compton, Calif. and Waterloo, Quebec, Canada

PERSONAL NOTES

(from page 34)

perintendent of Long Finishing Mills, Inc., Burlington, N. C.

Mitchell Carlisle, formerly superintendent, has been promoted to manager of The Seminole Mills, Clearwater, S. C., a division of United Merchants & Manufacturers, Inc.

Thomas M. Griffin has assumed his duties as assistant director of quality control at the Ware Shoals, S. C., division of Riegel Textile Corp. * * * At the Trion, Ga., plant, **Roy Bryan,** formerly supervisor in the bleaching department, has been promoted to overseer of the cloth warehouse.

New president of the Southern Textile Methods and Standards Association is **L. Land** of Woodside Mills, Greenville, S. C. Vice-president is **Tom Williams** of Riegel Textile Corp., Ware Shoals, S. C. Treasurer is **George Funderburk** of U. S. Rubber Co., Hogansville, Ga., and executive secretary is **Howard Loveless** of the University of Tennessee, Knoxville.

The Alabama Textile Education Foundation, Inc., named a new treasurer and appointed a new research committee at its fall meeting in Auburn, Ala. **Robert Horsley,** manager of Pepperell (Ala.) Manufacturing Co., was elected treasurer to fill the unexpired term of Homer Carter, former manager of Pepperell's Alabama division and now executive vice-president of the company. Research committeemen named to work with the Alabama Polytechnic Institute textile school officials to formulate policy and select projects to be undertaken at the school are as follows: **Charles Wilson** of West Point Manufacturing Co., **Charles Harris** of Pepperell Manufacturing Co., **Geoffrey Lund** of Courtaulds, Inc., and **John Harris** of Russell Manufacturing Co.

At the annual meeting of the Throwsters Group of the American

Continued on page 42

Help Fight TB

Use Christmas Seals

IT'S COLOR-IFIC! COLORSPUN* RAYON and ACETATE

. . . in colors that rival the brilliance of the plumage of nature's most colorful creations. Like the bird of paradise, Colorspun fibers are born with the color sealed in for life—color is added to the solution before spinning the fiber. Resists fading due to water, sun, perspiration, fumes, etc.! That's why Colorspun fibers are used for fashions, homes, automobiles, industry!

COLORSPUN . . . RAYON STAPLE

1. BRIDAL ROSE
2. PALE PINK
3. SILVER GREY
4. SEA FOAM
5. CASCADE
6. SPUN GOLD
7. SANDALWOOD
8. BISQUE
9. CHAMPAGNE
10. SPICE BROWN
11. ROSEWOOD

COLORSPUN . . . ACETATE YARNS

12. FIREBIRD RED
13. DUSTY ROSE
14. AQUATONE
15. SPICE BROWN
16. NUTMEG
17. BISCUIT
18. DARK GREEN
19. AVOCADO
20. COPPER
21. BRONZE
22. GOLD
23. BLACK
24. LIGHT GREY
25. ROYAL BLUE

COLORSPUN . . . RAYON YARNS

26. NAVY
27. ROYAL BLUE
28. ULTRAMARINE
29. ORIENTAL BLUE
30. APPLE RED
31. ROSE
32. PALE PINK
33. TURQUOISE
34. IRISH GREEN
35. KELLY GREEN
36. SHERWOOD
37. TARRAGON
38. TRITON
39. SURF GREEN
40. GOLD
41. PALE LEMON
42. SPICE BROWN
43. HENNA
44. NUTMEG
45. BISQUE
46. BLACK
47. SLATE
48. NICKEL
49. CHAMPAGNE

COLORSPUN . . . SMOOTH RAYON CARPET STAPLE

50. CHESTNUT
51. BRAZIL
52. SANDALWOOD
53. SUN TAN
54. BEIGE
55. BLACK
56. DOVE GREY
57. SUN GOLD
58. TURQUOISE
59. JADE GREEN

*TM of American Viscose Corporation

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AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, N. Y.

COLORSPUN*

RAYON and ACETATE ARE EVERYWHERE

. . . in your clothing, in your home, in your car, in your electrical appliances and in the factories that supply your needs. In demand by manufacturers of all kinds, these forever-colorful fibers have hundreds of end uses. If you are not already using Colorspun, we would be happy to supply you with additional information.

COLORSPUN ACETATE

. . . used mainly in men's, women's and children's fashions:

- carcoat-linings
- draperies
- suit-linings
- coat-linings
- dress goods
- bathing suit fabrics
- men's socks
- umbrellas
- women's tricot lingerie

COLORSPUN FILAMENT RAYON

. . . enjoys much popularity for men's and women's apparel:

- linings
- shirtings
- dress goods
- decorative worsted yarns
- manufacturers' labels

. . . has many uses in home furnishings:

- draperies
- curtains
- slipcovers
- upholstery
- bedspreads
- throws
- tablecloths
- gift-wrap ribbons

. . . is a major item in automobile interiors:

- upholstery
- head liners
- upholstery trimmings

COLORSPUN STAPLE RAYON

. . . used by top makers of men's, women's and children's ready-to-wear:

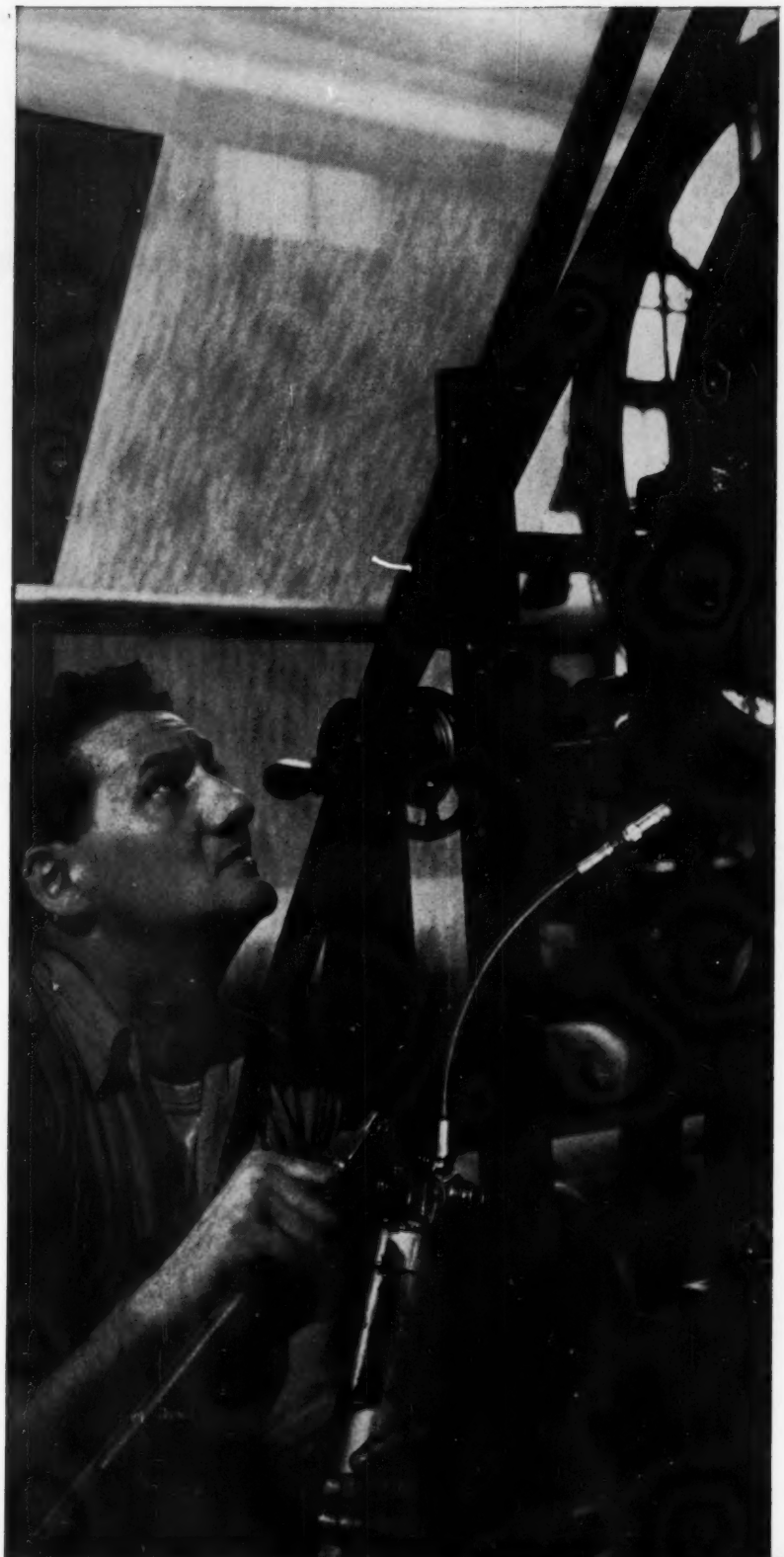
- interlinings
- dress goods
- suit goods
- men's hosiery
- men's t-shirts
- and airplane luggage

. . . is of major importance to the home fashion industry:

- carpeting
- draperies
- place mats
- upholstery
- bedspreads
- tablecloths

. . . is being used by the top automobile makers:

- upholstery
- window-channel fabrics
- convertible tops
- carpeting



Needs less "make-up" grease with NEBULA® EP

Measured in terms of lower depreciation, less down-time and costly overhauls—your maintenance man makes a most significant contribution to your profit picture. That's why it pays to supply him with Nebula EP . . . the multi-purpose grease that has no rival, especially under high heat and extreme pressure conditions.

Nebula EP requires less make-up grease because it stays put, resists thinning and refuses to run out at the high temperatures created in textile equipment bearings. Even in bearings that are subject to extreme heat, like the "dry can" bearings shown here, Nebula EP stays on the job. In addition Nebula EP offers remarkable extreme pressure characteristics — making it the ideal multi-purpose grease for use in almost every machine and bearing found in textile equipment.

For more information on versatile Nebula EP, or technical assistance available through a conveniently located Esso Sales Service Laboratory, contact your nearest Esso office, or write: Industrial Lubricants Division, Esso Standard Oil Company, 15 West 51st St., New York 19, New York.

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In industry after industry...**"ESSO RESEARCH works wonders with oil"**

Let Pennsalt show you how to . . .

REDUCE COSTS and IMPROVE QUALITY

Personalized technical service tailored to your needs . . . plus quality chemicals . . . can mean substantial savings in processing and improved quality in your finished goods. Call on PENNSALT for TEXTILE FINISHING SERVICE if you:

- want your fabrics better prepared for peroxide bleaching
- find that your fluidities are too high
- want to cut costs by reducing bleaching chemical requirements
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An experienced representative will study your process from greige goods to finished product and provide you with reliable solutions to these and other textile finishing problems. Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, Three Penn Center, Philadelphia 2, Pa.

Specify PENNSALT QUALITY CHEMICALS when you buy

caustic soda — hydrogen peroxide
chlorine — ammonium chloride
surfactants — ferric chloride

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Pennsalt Chemicals
ESTABLISHED 1850

From Sliver to Yarn in One Operation... with the PROVEN

WHITIN MONARCH* SPINNING FRAME

Produces large yarn packages and completely eliminates roving

Actual mill installation of Whitin Monarch Spinning Frames

COARSE YARN PRODUCTION

The Whitin Monarch Spinning frame is an accepted type machine for producing very large packages of knotless coarse yarns, from .5's —8's (cotton count), directly from sliver. The frame features a massive chassis, the famous Whitin two-apron roving drafting arrangement with top arm suspension and weighting, 6″ or 7″ gauge, up to 5½″ rings, 11″ traverse. Either floor or ceiling creels can be used.

It is ideally suited to highly economical production of quality tufted carpet and other coarse yarns from wools, synthetics and blends with fiber lengths from 3″ to 9″.

- **Yarn on bobbin — up to 3.5+ lbs.**
- **Draft range up to 50**
- **Accommodates sliver up to 100+gr./yd.**
- **Spindle speeds up to 5000+ r.p.m.**
- **Spinning type cradles**
- **Quik-Set Ratching for instantaneous change of roll setting**
- **Pulleys for four spindle drive**

*TRADE MARK

Member of American Textile Machinery Association

Whitin

MACHINE WORKS

WHITINSVILLE • MASS.

CHARLOTTE, N. C. • ATLANTA, GA.
SPARTANBURG, S. C. • DEXTER, ME.

PERSONAL NOTES

(from page 36)

Cotton Manufacturers Institute, Inc. held in Absecon, N. J., recently, **Joseph H. Hamilton** of Burlington Throwing Co. was elected chairman and **Don M. Harshman** of Grove Nylon Co. was named vice-chairman.

Operating executives of Carpet Yarn Mills, Inc., Dallas, Ga., a woolen system mill which recently began operation, are as follows, according to Lee Womelsdorf, president of the firm: superintendent—**Howard Ford** who was formerly associated with Wyandotte Worsted Co., Conestee, S. C.; assistant superintendents—**Delbert Hardy** and **Gerald Thompson.** Mr. Hardy is in charge of the first shift and Mr. Thompson the third shift operation.

At the recent fall meeting of the Textile Operating Executives of Georgia the following were elected to serve in the offices indicated for the ensuing year: general chairman—**Willis S. James,** superintendent of Summerville (Ga.) Mfg. Co.; vice-general chairman—**Lee Wynn,** superintendent of Canton (Ga.) Cotton Mills; secretary-treasurer—**Dr. J. L. Taylor,** director of A. French Textile School, Georgia Institute of Technology, Atlanta. **Dan Melton,** superintendent of Walton Cotton Mills, Monroe, Ga., is a newly appointed member of the organization's executive committee.

Mr. James

Mr. Wynn

Dr. Taylor

Dr. Sheehan

Dr. William C. Sheehan has joined the staff of Southern Research Institute, Birmingham, Ala., as head of the textile section. Dr. Sheehan was previously associated with Du Pont at Richmond, Va. In his new position Dr. Sheehan will direct the program of textile and fiber research, including work currently in progress on sizing, finishing, and flameproofing.

PLAN NOW TO SEE

ATMA

Parade of Progress

American Textile Machinery Exhibition

Atlantic City, N. J.

May 23-27, 1960

For hotel/motel reservation form, write to Housing Bureau, 16 Central Pier, Atlantic City, N. J.

OBITUARIES

P. K. Drye, 71, vice-president of Corriher Mills Co. and general superintendent of Linn Mills Co., Landis, N. C.

Russell Watson Frye, 53, superintendent of the spinning department of Spindale (N. C.) Mills.

Arthur M. Gordy, 77, retired superintendent of the former Ingram Spinning Mills and Southern Spinning Mills, Nashville, Tenn.

F. E. Grier, 59, president of Abney Mills, Greenwood, S. C., and chairman of the board of Erwin Mills, Inc., Durham, N. C.

Thomas Scott Hunter, 73, founder and former president of Elizabeth Webbing Mills, Inc., Central Falls, R. I.

Ewald M. Jersild, 70, executive of Jersild Knitting Co., Neenah, Wis.

Horace W. Kiser, 67, former management consultant engineer of Cone Mills Corp. and a former vice-president of Abbeville Mills Corp.

Robert P. Michaels, Sr., 67, purchasing agent for Collins and Aikman Corp., Roxboro, N. C.

Earle C. Powdrell, 52, former president of Powdrell & Alexander, Inc., Danielson, Conn.

Cecil Reese, 48, former general manager of Shuford Mills, Inc., Hickory, N. C.

Frank R. Rentz, Jr., 48, former owner of the F. R. Rentz Silk Mill, Huntingdon Valley, Pa.

Robert Watson Roane, 58, superintendent of the full-fashioned division of Davenport Hosiery Mills, Inc., Chattanooga, Tenn.

Miles Richardson Rudisill, 87, formerly associated with Henry River (N. C.) Mills Co.

Elliott White Springs, 63, president and general manager of The Springs Cotton Mills, Fort Mill, S. C.

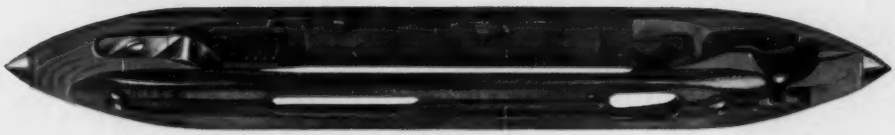
John Springthorpe, 59, executive of Pine State Knitwear Co., Mount Airy, N. C.

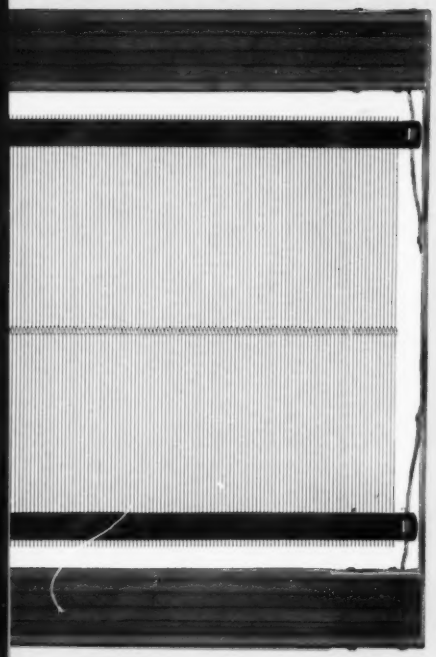
Martin William Tucker, retired superintendent of Adams-Millis Corp., High Point, N. C.

Conrad Rudolph Wenner, 63, retired superintendent of a Fayetteville, N. C., plant of Burlington Industries, Inc.

Ernest Hubert Whited, 45, assistant superintendent of sewing and finishing division of Standard Knitting Mills, Knoxville, Tenn.

NOTHING SO DURABLE AS DURAWELD





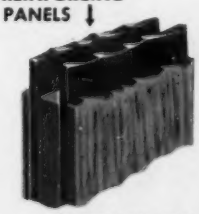
STEHEDCO Duraweld Harness Frames are Premium Grade and guarantee longer life. Each Duraweld frame stick is a lamination of strips of carefully selected, high quality wood permanently bonded together for greater strength and stability. This assures less distortion, warping, and splintering, with greater holding power for hardware, and elimination of weak spots.

SOUTHERN Duraweld Shuttles are made of finest quality tempered dogwood end blocks, for greater resiliency and tip retention, permanently bonded by an exclusive Southern method to long wearing wall sections of laminated wood or plastic. They assure at least 100% longer life expectancy with only a very moderate weight increase.

STEHEDCO Duraweld Picker Sticks provide the unexcelled combination of greater strength and whip, plus resistance to warping. They are made of multiple laminated veneers of high grade hickory reinforced with veneers of vulcanized fiber, permanently bonded with phenolic adhesive into a uniform panel.

Duraweld Harness Frames, Shuttles and Picker Sticks are manufactured with great care under rigid Quality Control methods, and will pay for themselves over and over again with superior performance and longer life. Ask one of our qualified Sales Engineers to show how YOU can start counting your savings when you invest in DURAWELD.

FIBER REINFORCING PANELS ↓



↑ MULTIPLE HICKORY VENEERS

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STEEL HEDDLE MFG. CO.
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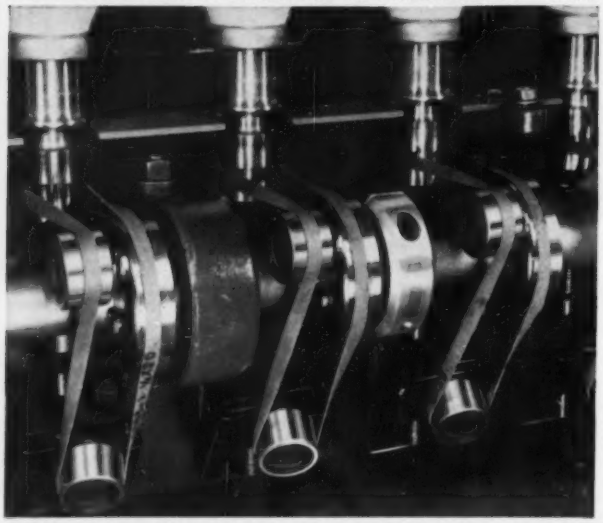
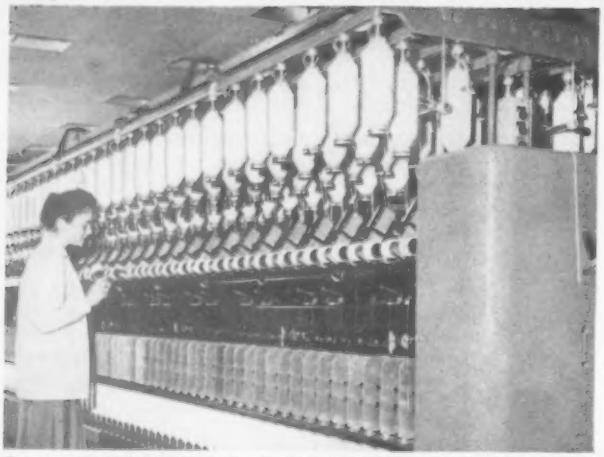
WHITIN AND FAFNIR—PARTNERS IN PROGRESS 35 YEARS



Close-up of Whitin Piedmont's spindles, with drive cover removed, showing individual belt drives.

UNIQUE SPINDLE DRIVE ON NEW WHITIN PIEDMONT IS FAFNIR-EQUIPPED FOR HIGH SPEEDS, LOW UPKEEP



Piedmont machine in operation. Features include "straight line" spinning, latest Whitin Super-Draft, scientific balloon control system, compact 27" width.

675 FAFNIR BALL BEARINGS DESIGNED INTO NEW SPINNING FRAME

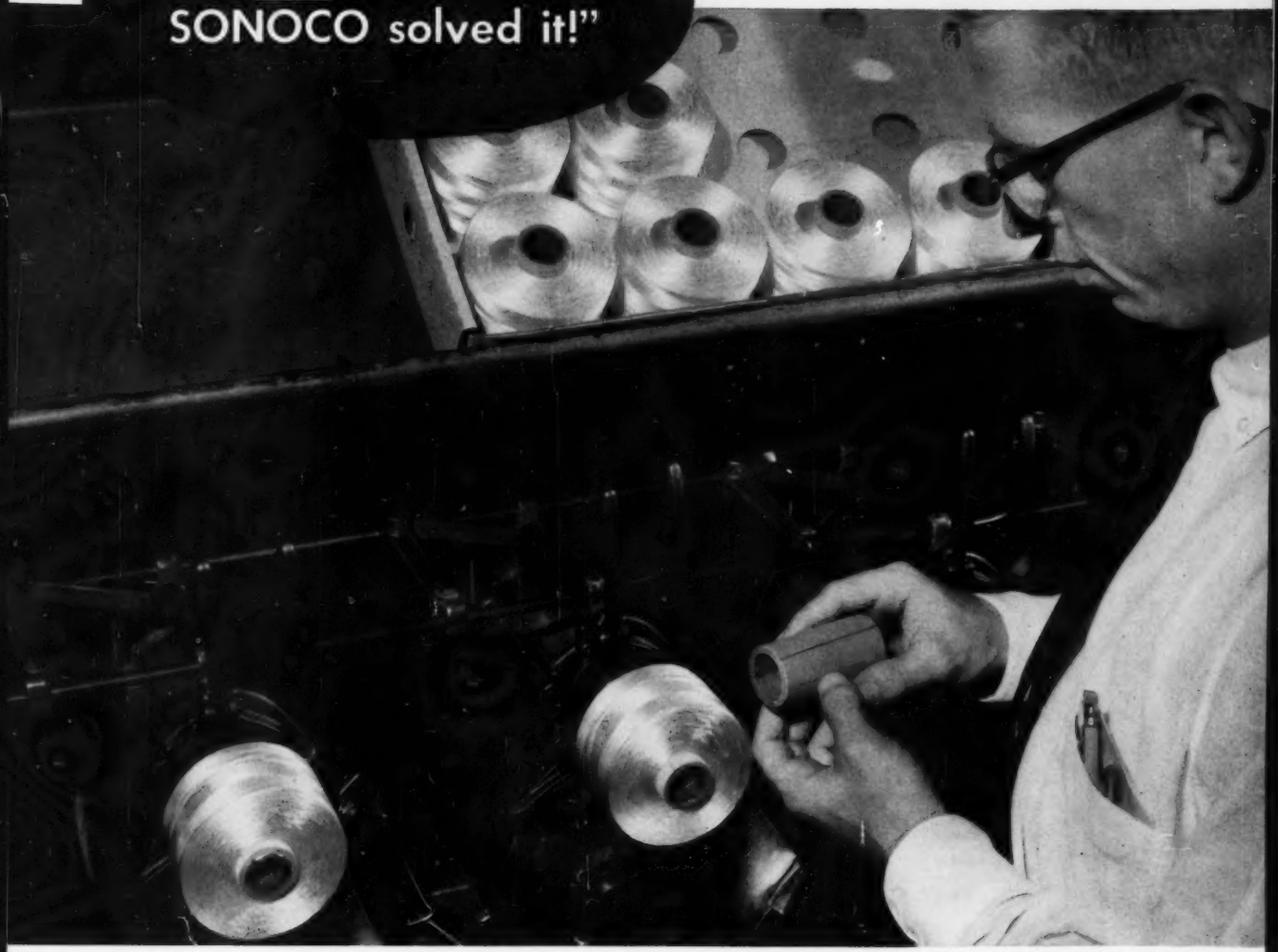
Individual belt drives for each spindle are the outstanding design feature of Whitin's new Piedmont Spinning Frame. The unique construction affords more uniform, high-speed spindle operation while eliminating windage problems. The design also permits a fully enclosed drive, for cleaner spinning. ✓ ✓ ✓ Among some 675* Fafnir ball bearings specified for the new frame are 576 prelubricated and shielded spindle belt idler bearings. Fifty prelubricated Fafnirs with Mechani-Seals are used for the drive shafts. In addition to permitting higher speeds, these Fafnir ball bearings virtually eliminate maintenance. Contaminants are sealed out; lubricant sealed in. ✓ ✓ ✓ Emphasis on antifriction design pays off in performance too. **Components are so nicely balanced that the whole frame can be turned easily by hand—even with the machine in fully-loaded, ready-to-go condition!** Convincing evidence of precise, economical operation. Evidence, too, of how "the Fafnir touch" can smooth the going when design reaches turning points. Worth bearing in mind. The Fafnir Bearing Company, New Britain, Connecticut.

*On 288-spindle frame

Fafnir Double-Shielded Spindle Belt Idlers (top) and Mechani-Seal Drive Shaft Ball Bearings (center) used in Whitin Piedmont. Ball bearings with Plya-Seals, contact type (bottom), are specified for head end gearing...offer best protection yet against foreign matter, loss of lubricant.

FAFNIR
BALL BEARINGS
Most Complete Line in America

"We had a problem . . .
SONOCO solved it!"



THE NEED: Split yarn tube to fit spindles without expanders

A large manufacturer was using a synthetic yarn, supplied by one of Sonoco's customers, to cover wire. The yarn was shipped on a split tube which permitted the empty tube to be removed and replaced with a filled package without cutting the wire. The spindle used on the wire-covering equipment had small splines but no expanders. If the tube I.D. varied as much as .004", the tube could not be put on the spindle or the fit was too loose for the spindle to drive the yarn package.

An experienced Sonoco sales engineer, with the assistance of the research and production departments, quickly solved this problem with a simple and ingenious idea. First, the inside diameter of the tube was slightly increased to assure a proper fit and, second, the interior surface was so constructed to give the splines a gripping area permitting the spindle to drive the package properly.

Only Sonoco with 60 years' experience, plus modern research and completely integrated manufacturing facilities, could solve this problem quickly. It is typical of countless cases where Sonoco technical and production "know-how" has benefited the industry. *Let Sonoco experience help you!*

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PAPER PRODUCTS

Our 60th year
1899 - 1959

SONOCO
Products for Textiles

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Main Office—Hartsville, S. C. • Mystic, Conn. • Akron, Ind. • Lowell, Mass. • Phillipsburg, N. J. • Longview, Texas • Philadelphia, Pa. • La Puente, Cal. • Fremont, Cal. • Atlanta, Ga. • Granby, Quebec • Brantford, Ontario • Mexico, D. F.

High Purity
Uniform Purity
Dependable Deliveries
Helpful Technical Service...
have made STAUFFER'S reputation in the Textile Industry

STAUFFER'S CARBON DISULFIDE

exceeds 99.99% purity. Stauffer was the first—is still the largest—domestic producer of this essential chemical.

STAUFFER'S SODIUM SULFHYDRATE

(Sodium Hydrosulfide) is shipped in lined cars in aqueous solution of highest purity, 45% NaHS, suspended iron under 5 ppm. Cost is less per unit of 100%-active NaHS. The liquid is much easier to handle than the flake and pH is more accurately controlled. Send for new Technical Bulletin.

STAUFFER'S CAUSTIC SODA

is available in 50% and 73% liquid Rayon grade. New brochure, 30 pages with many graphs and tables will be sent on request.

STAUFFER'S SULFURIC ACID

is tailor-made for your process—**to a tenth of one percent**—in strengths from 77.67% to 100%; also as Oleum of 15% free SO_3 to 100% liquid SO_3. Shipments from many points in the South, Midwest and West.

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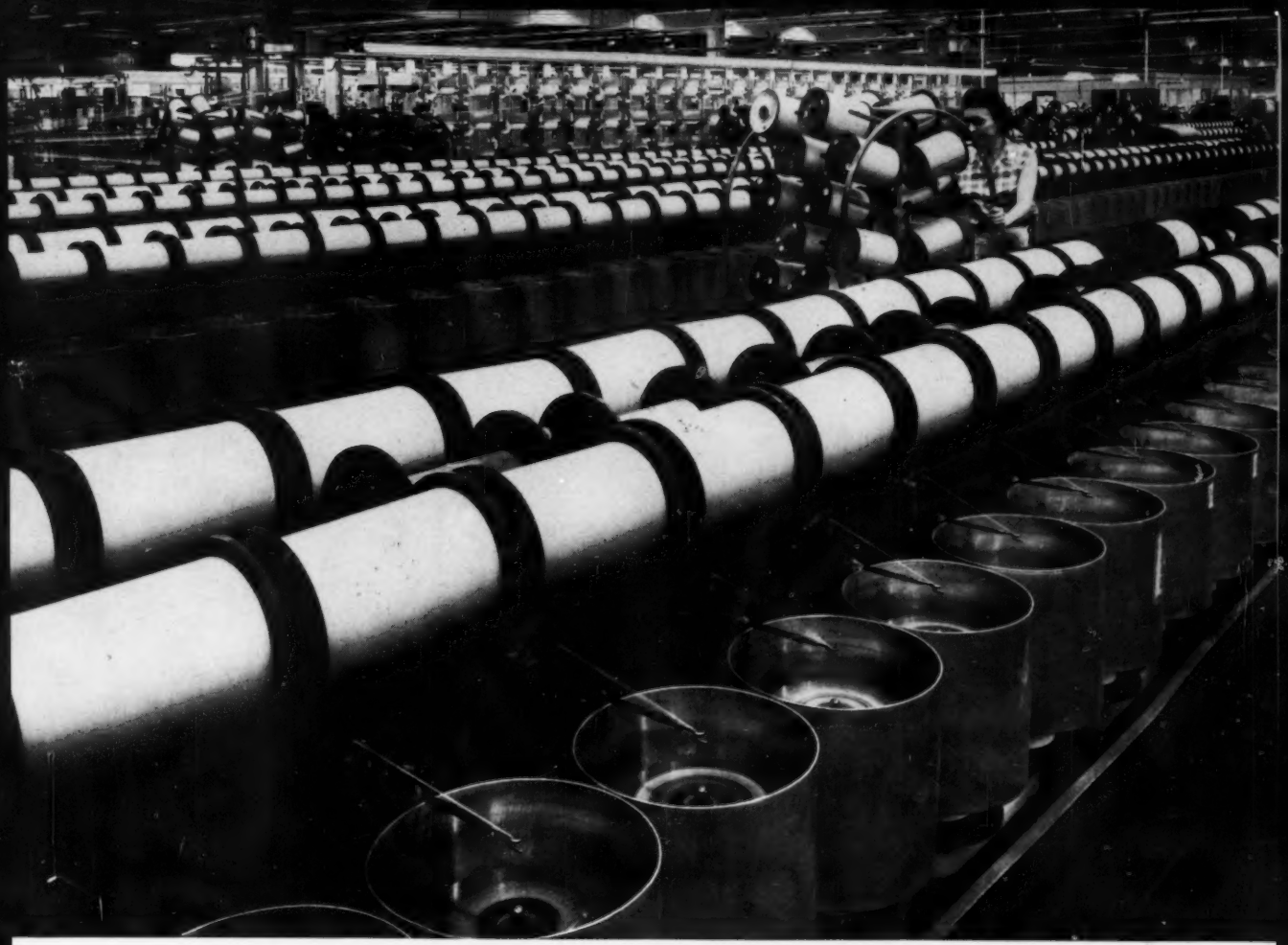
Ask for Technical Service if we can be of help to you. Stauffer's technical experts are skilled and experienced in every aspect of making and using these textile chemicals.



Large packages of Tyrex viscose tire cord revolve on these cord twisting machines in the Painesville, Ohio, plant of Industrial Rayon Corporation. Gulfspin keeps the spindles running smoothly.

Large packages rotate trouble-free with Gulfspin—

GULF MAKES THINGS RUN BETTER!

In the manufacture of its highly successful new Tyrex* viscose tire cord, Industrial Rayon Corporation, Painesville, Ohio, depends on Gulfspin for trouble-free operation of their spindles. Thousands of twister spindles operate 24 hours a day, 365 days a year!

Industrial Rayon engineers report that Gulfspin 41—their spindle lubricant for over 5 years—keeps their busy spindles running clean. Maintenance checks show the spindles to be free from gum, sludge and rust.

May we have the opportunity to demonstrate how Gulfspin can improve *your* spindle lubrication—to help you protect against harmful deposits, minimize problems of heat and vibration, conserve power.

Just call your nearest Gulf office and ask a Gulf Sales Engineer to contact you. Or, mail the coupon for a booklet on Gulfspin.

*Tyrex is a certification mark of Tyrex Inc. for viscose tire yarn and cord.

GULF

GULF OIL CORPORATION
Dept. DM, Gulf Building
Pittsburgh 30, Pa.

Send booklet on Gulfspin.

Name_____

Title_____

Company_____

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Booth

Originators of **SUPR-O-TAPE • SUPR-O-BAND • STRIP-O-MATIC • MICR-O-GRIND**

MANUFACTURERS OF QUALITY CARD CLOTHING SINCE 1892

REDUCE YOUR NEP COUNT! WITH MICR-O-GRIND*

CARD CLOTHING *Pat. Pending

MILL TESTS SHOW:

Nep count reduced 40%

Blending improved substantially

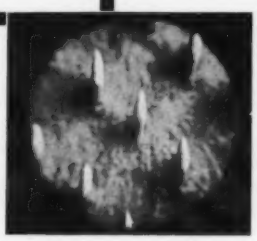
Yarn strength up 10%

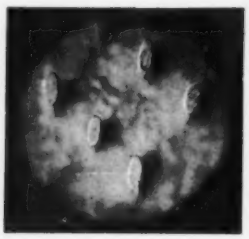
Grinding 80% less frequent

Grinding time less than 30 minutes (normal 6-8 hours)

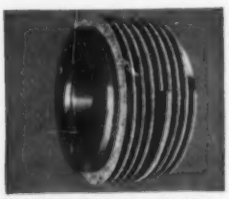
Stripping 65% less frequent

Booth card clothing may now be obtained with a **new and exclusive** extra sharp needle point. With your first purchase of this new clothing, the MICR-O-GRIND head is available so that you can regrind it yourself.





Note needle point from MICR-O-GRIND (left) compared with conventional flat point (right). Extra sharp MICR-O-GRIND points card out the neps and reduce the nep count as much as 40% on cotton. Sharper points also allow stock to release itself—hence less loading—and also give greatly improved carding action. Stripping of cotton cards only once a shift—on woolen cards as little as once a month.



Grinding discs are spiraled to take off the heel of each tooth. MICR-O-GRIND head fits your conventional grinding shaft.

HOW IT WORKS

MICR-O-GRIND card clothing is ground with spiral abrasive discs that take the heel off the wire. Accuracy of initial grind is assured by exclusive Booth electronic monitor controls. This leaves a needle-like point, long recognized as ideal for card clothing. *Never before has this ideal been attained.* Conventional grinding invariably leaves a flat point because no way was known to grind the teeth to a perfect point.

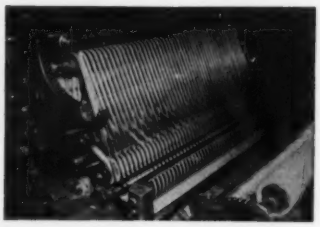
IMPROVED QUALITY

The needle point of the teeth holds the fibres long enough to be thoroughly carded and yet does not tear the fibres. This provides a more gentle combing action for increased yarn strength, better blending and reduces neps by as much as 40% in cotton carding.

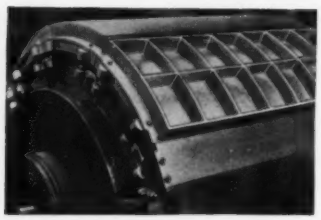
Needle point is smooth enough to release the stock easily, yet the fine serrations (as seen under a microscope) will not let the fibres escape without being carded. This also means that there is less beating action at the doffer comb as the web flows more readily off the card.

REDUCED COSTS

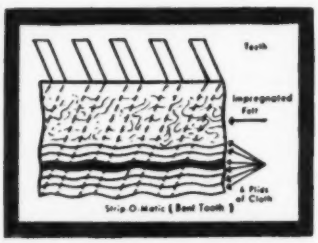
through reduced Down Time for grinding and stripping. MICR-O-GRIND clothing is very inexpensive—only 5% more. The MICR-O-GRIND needle point can be applied to any type of card clothing—the only difference is the point. In a cotton mill, you can get your standard 100's, 110's, etc., in either CCWC, CWC or rubberfaced foundation—also any woolen clothing.



SUPR-O-TAPE—the new proven condenser tape for longer life—improved roving—no stretch—no cracking—no need to oil—no dropped ends—holds square edges indefinitely.



BOOTH offers GRAN-O-TOP—SRRL Granular Card Top Conversion complete unit. Gain the advantages of this new method of carding. Write today for full details.



STRIP-O-MATIC—clothing greatly reduces stripping waste, down time and costs.

BENJAMIN BOOTH COMPANY

ALLEGHENY & JANNEY STS., PHILA. 34, PA.

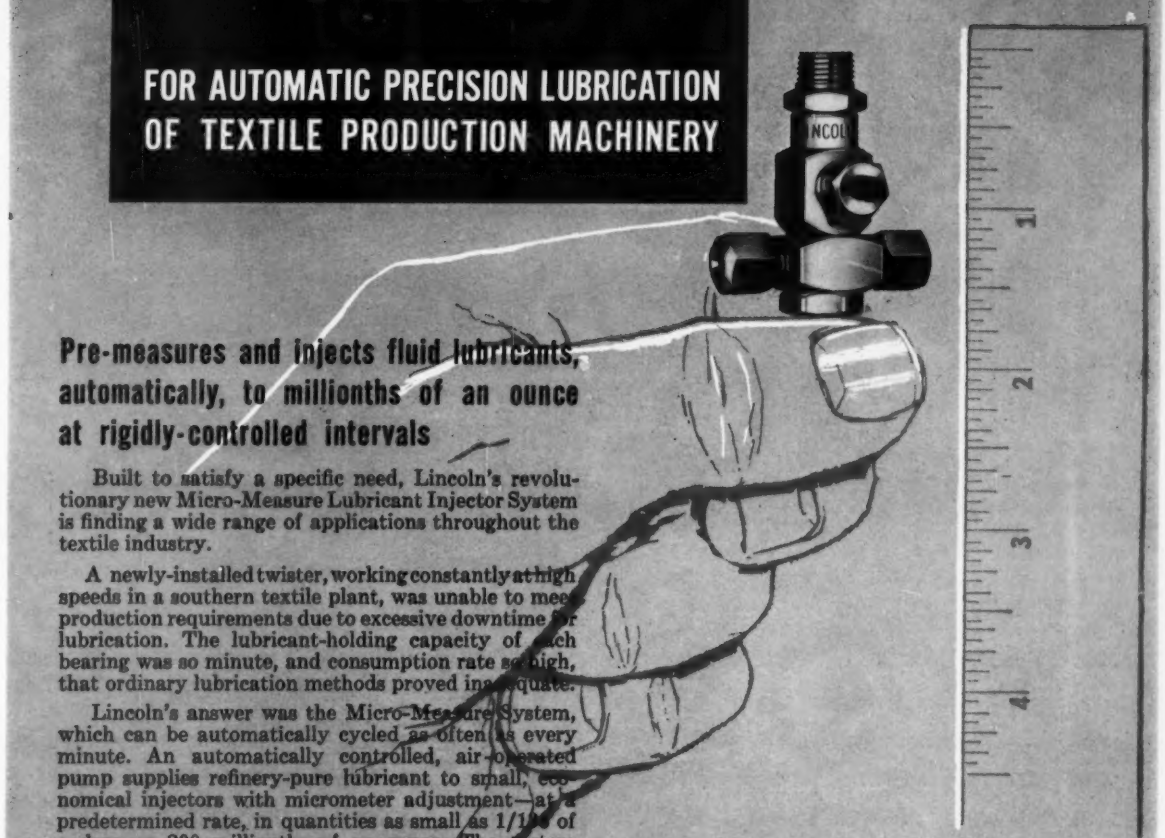
SALES OFFICES: William Gill, Lowell, Mass., Tel. GL 4-2211
Charles G. Stover, P. O. Box 6, West Point, Ga., Tel. 3-6431
Hurley & Harrison, Inc., P. O. Box 1443, Greenville, S. C., Tel. CE 5-3206

Booth

New! Lincoln

Micro-Measure System

FOR AUTOMATIC PRECISION LUBRICATION OF TEXTILE PRODUCTION MACHINERY



Pre-measures and injects fluid lubricants, automatically, to millionths of an ounce at rigidly-controlled intervals

Built to satisfy a specific need, Lincoln's revolutionary new Micro-Measure Lubricant Injector System is finding a wide range of applications throughout the textile industry.

A newly-installed twister, working constantly at high speeds in a southern textile plant, was unable to meet production requirements due to excessive downtime for lubrication. The lubricant-holding capacity of each bearing was so minute, and consumption rate so high, that ordinary lubrication methods proved inadequate.

Lincoln's answer was the Micro-Measure System, which can be automatically cycled as often as every minute. An automatically controlled, air-operated pump supplies refinery-pure lubricant to small, economical injectors with micrometer adjustment—at a predetermined rate, in quantities as small as 1/100 of a drop or 200 millionths of an ounce. The system maintains a constant, uniform oil film on all bearing surfaces with no overflow, no dripping.

With Lincoln's Micro-Measure System, the manufacturer improved his production rate and quality of product *with substantially lower operating expense*—dollar savings that completely offset the cost of the Micro-Measure System within a few weeks!

For further information on Micro-Measure and how it can help *your* mill's operation, mail the coupon today, or contact your local Lincoln distributor.

MAIL THIS COUPON TODAY!

LINCOLN ENGINEERING COMPANY
5702-15 Natural Bridge Avenue
St. Louis 20, Missouri

Please send my copy of MICRO-MEASURE SYSTEM Bulletin 816.

Name..... Title.....

Company.....

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OIL IS SUPPLIED TO BOTH TOP AND CONICAL BEARING SURFACES THROUGH SEAMS.
LESS OIL IS NEEDED.
TRAVELER DISTRIBUTES OIL.
Oil flows to the annular reservoir within the ring, then is drawn by capillary action through seams to the bearing surfaces.

It's the New HERR "M" TYPE Conical Ring

The best equipped textile mills in the United States have been gaining experience with Herr "M" type Conical Rings and have reported wonderful success during the past four years. They report a definite control of lubrication far superior to any wick lubricated ring. They have achieved a reduction in oil, a saving in maintenance, an increase in spindle speed, a reduction in yarn breakage, and have produced a much cleaner yarn.

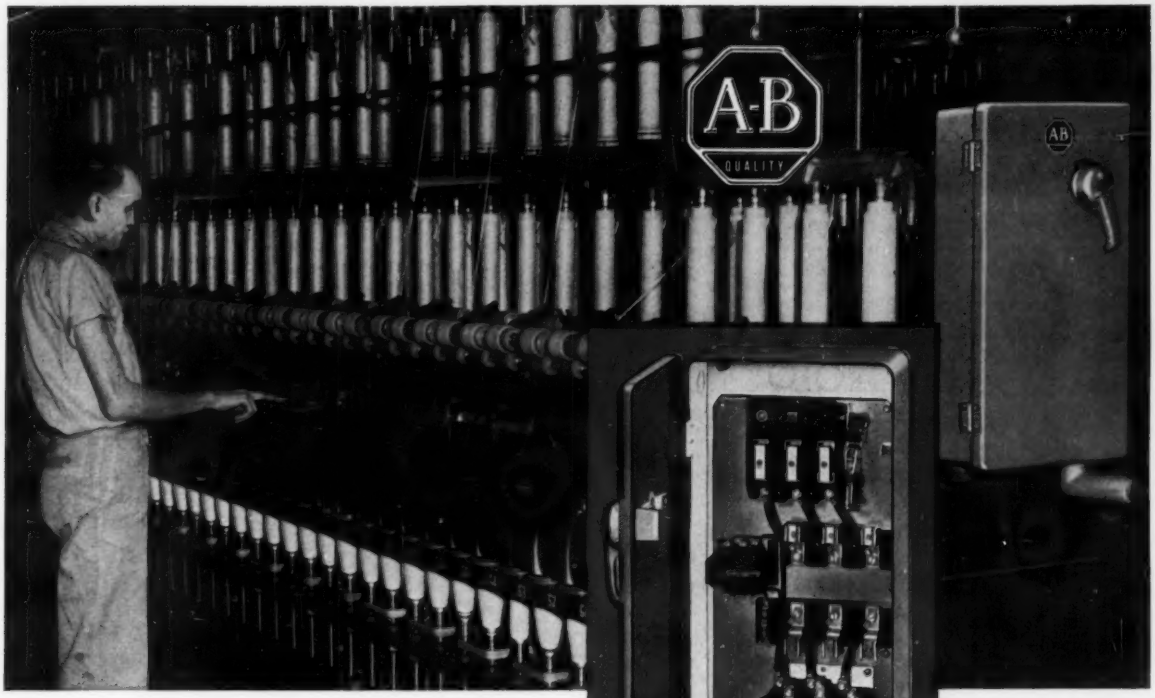
The new "M" ring makes use of a different principle of carrying the oil to the bearing surfaces of the ring where it is needed. It is called capillarity and, because the distribution is so complete, less oil is required.

Phone us today — order enough "M" Rings to convert a machine. You will be pleased with the results of your test.

HERR MANUFACTURING CO., INC.

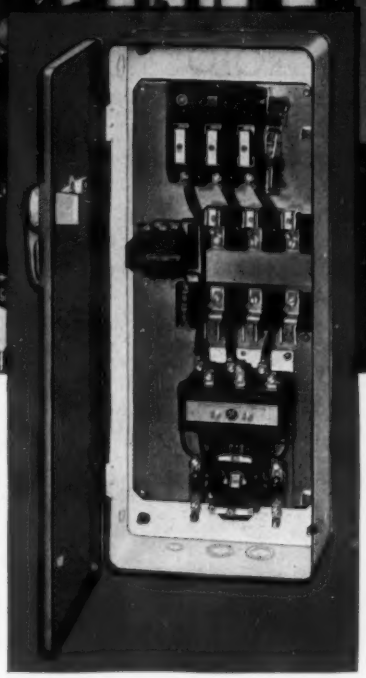
310 FRANKLIN STREET, BUFFALO 2, NEW YORK

FOR SPINNING AND TWISTING WORSTED, WOOLEN, RAYON, NYLON, ORLON, FIBERGLASS AND BLENDED YARNS OF ALL TYPES



The best motor control for textile mill service

ALLEN-BRADLEY
Combination Starters



BULLETIN 712, Size 3 equipped with fuse clips and fused control circuit transformer. Made in ratings to 100 hp, 220 v; 200 hp, 440-550 v. Bulletin 713 with I.T.E. instantaneous trip circuit breaker. Made in ratings to 250 hp, 220 v; 500 hp, 440 v; 600 hp, 550 v.

You'll have complete protection at "lower installed cost" with Allen-Bradley Bulletin 712 combination starters—plus a neater job than with a separate starter and disconnect switch.

Here are the features you get. The Bulletin 712 has starter and disconnect switch in one enclosure, and the cabinet door cannot be opened unless the disconnect switch is OPEN—and the starter is "dead." When the switch is open, all three movable contacts are *plainly* visible—you can *see* that all the lines are open. Also, the incoming terminals are protected with an insulating shield—there's no chance of accidental contact with a "hot" lead. In addition, the handle can be locked ON or OFF with up to three padlocks of any type.

In addition, the quality finish of A-B starters assures positive protection against the exceptionally humid atmospheres in textile plants.

For the best in motor control—insist on Allen-Bradley combination starters for your textile plant.

Allen-Bradley Co., 208 W. Greenfield Ave., Milwaukee 4, Wis. In Canada: Allen-Bradley Canada Ltd., Galt, Ont.

A-B makes a complete line of Quality Starters for the Textile Industry

Loom Motor Starting Switch with toggle action—Bulletin 1209. Enclosure excludes lint. Available with pedestals.

Automatic Across-the-Line Starter—Bulletin 709 Solenoid Starter with accurate overload protection. Made in nine sizes.

Manual Stepless Resistance Reduced Voltage Starter—Bulletin 640. Acceleration is under control of operator.

Automatic Resistance Starter for velvet smooth starting at reduced voltage—Bulletin 740. Adjustable to exact load.

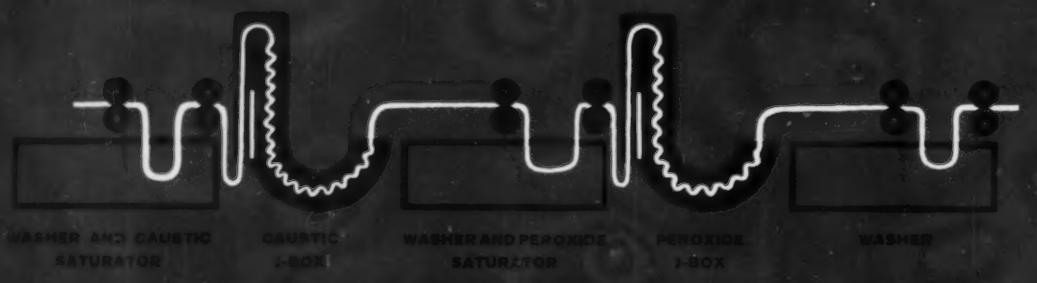
Automatic Autotransformer Reduced Voltage Starter—Bulletin 746. Starting voltage and accelerating period are adjustable.

ALLEN-BRADLEY QUALITY MOTOR CONTROL

From Du Pont—originator of Solo-Matic* Bleaching

Two new cost-cutting

1. NEW RAPID BLEACH



ADVANTAGES

- **Cuts cloth storage time to as low as 8 minutes in each J-box**
- **Cuts J-box costs up to 75%**
- **Eliminates bruises, rub marks, creases**
- **Reduces headroom up to 50%**

DESCRIPTION

Rapid Bleach is a new continuous process for medium to heavyweight fabrics that can improve bleaching quality. It's a fast bleaching process that incorporates the caustic pre-treatment in the first J-box. This process is simple, compact, continuous and reduces mechanical handling operations. Rapid Bleach can be adapted to any continuous or semi-continuous open-width system. It can be used for medium-weight cotton fabric and is especially suitable for hard-to-handle heavyweight fabrics that are susceptible to bruising.

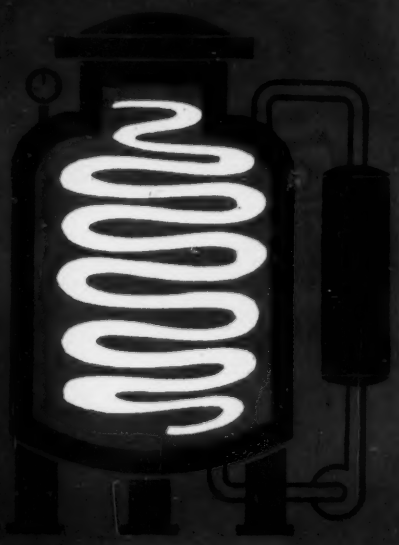
HOW YOU CAN PROFIT FROM DU PONT'S PROCESSES . . . SERVICES . . . PRODUCTS

Whether or not you use any one of the Du Pont developed bleaching processes, you can count on the advice and help of an experienced Du Pont Technical Representative. He will help you with any bleaching problem that might arise or, if you wish, he can conduct a confidential survey of your entire bleachery to pinpoint where and how you can save money, improve bleaching.

Du Pont bleaching agents ensure excellent uniformity and high bleaching efficiency. All are thoroughly tested and proved by successful mill experience. All are available from convenient shipping points. Du Pont offers modern bleaching processes, technical services and quality products to help you keep *your* bleaching quality high—and your costs low. Use them and profit!

bleaching processes

2. NEW PRESSURE BLEACH

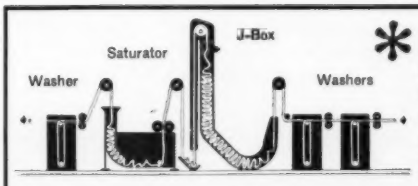


ADVANTAGES

- **Reduces process time up to 50%**
- **Doubles production in the same space**
- **Uses present equipment**
- **High-quality bleaching**

DESCRIPTION

This new high-speed bleaching process for kiers and package machines is a pressurized or high-temperature system that eliminates the need for caustic boil pre-treatment. The Pressure Bleaching process is used in cases where a plant's output or space does not warrant a continuous setup . . . can be easily adapted to present equipment. All types of cotton fabric, yarn and raw stock can be bleached uniformly at the lowest cost.



DU PONT SOLO-MATIC is an advanced single-stage process for high-speed rope-form bleaching. It can double your production in the same floor space or maintain the same production in half the space. Solo-Matic is now helping more than 25 major mills improve bleaching quality and trim costs. With the addition of Rapid Bleach and Pressure Bleaching, Du Pont processes cover all phases of cotton bleaching. No matter what your needs, Du Pont has a modern process to help you.

For more information, write or call:

E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department
Peroxygen Products Division, Wilmington 98, Delaware

DU PONT
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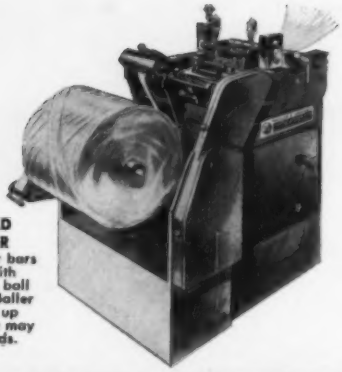
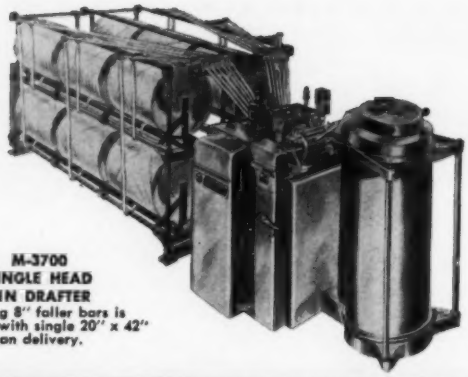
BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

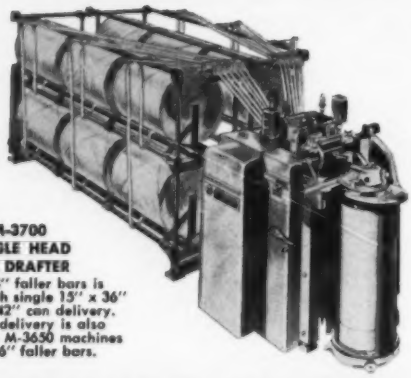


M-3700
SINGLE HEAD
PIN DRAFTER
utilizing 8" faller bars is available with single or double ball delivery. Single faller delivers a ball up to 18" x 24" that may weigh 50 pounds.

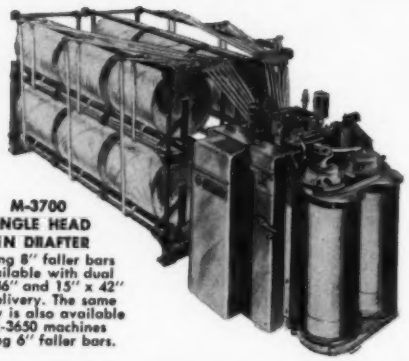


M-3700
SINGLE HEAD
PIN DRAFTER
utilizing 8" faller bars is available with single 20" x 42" can delivery.

There is now a WARNER & SWASEY



M-3700
SINGLE HEAD
PIN DRAFTER
utilizing 8" faller bars is available with single 15" x 36" and 15" x 42" can delivery. The same delivery is also available on M-3650 machines utilizing 6" faller bars.



M-3700
SINGLE HEAD
PIN DRAFTER
utilizing 8" faller bars is available with dual 15" x 36" and 15" x 42" can delivery. The same delivery is also available on M-3650 machines utilizing 6" faller bars.

PIN DRAFTER intersecting draw frame

M-3680
DUAL HEAD
PIN DRAFTER
utilizing 6" faller bars is available with 15" x 36" and 15" x 42" dual or quad can delivery and dual balling head.

Drawing equipment may look similar to a Pin Drafter, it may operate on the same principle as a Pin Drafter, it may even cost a little less; but no other pin controlled equipment can duplicate the quality, production and long-term low maintenance cost of a Warner & Swasey PIN DRAFTER® Intersecting Draw Frame.

In mills throughout the industry Pin Drafters give these definite advantages:

- **Better balanced, 50% greater production**
- **1500 faller drops per minute**
- **Produces more evenly blended sliver up to 12 ounces per five yards**
- **Handles wool, synthetics or blends**
- **Applicable to French, Bradford, American or Jute Systems and card room, comb room or dye house operation**

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TEXTILE MACHINERY DIVISION

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS...WITH A WARNER & SWASEY

NEWS IN BRIEF

Mill Stabilizes Spinners' Pay. To avoid drastic changes in spinners' pay, one southern cotton mill has adopted a new policy, which is simply to keep each spinner's job closer to the theoretical 100%. This prevents large fluctuations in pay when jobs are changed. The policy: "All spinning job loads will be refigured and reassigned as closely as possible to '100% jobs.' These will be calculated to the nearest half side, to bring each set as near as possible to the spinner standard rate . . . Spinners will continue to be paid according to yarn counts and job assignments, but the job assignments will be changed as often as is necessary to keep the pay rates within a range of [7¢]."

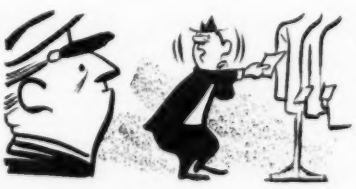
Textiles Show New Life. "The long-depressed textile industry is showing signs of new life," says the *Value Line Investment Survey.* Wide earnings advances, greater proportionately than sales gains in

most cases, can be attributed to operating efficiencies, adoption of the five-day week, and further curtailment of existing capacity. Results are likely to remain favorable well into the new year, the *Survey* concludes.

Hong Kong Real Threat? Hong Kong, and not Japan, is the No. 1 threat in the field of textile imports, according to Robert T. Stevens, president of J. P. Stevens & Co.

Bag-clad gentlemen startled passers-by on New York's Fifth Avenue recently. They're publicizing the exit of the "Baggy Look" with the arrival of "self-pressing" wool-dynel suits.

Asks Better Wash-and-Wear Policing. Consumer acceptance of wash-and-wear fabrics and garments will never reach its fullest potentials until the industry does a better job of policing wash-and-wear labeling, according to Harold C. Whittemore, general manager of the Warwick Chemical Division of Sun Chemical Corp. Speaking at his company's annual sales meeting, he declared that improper, incomplete, and inaccurate labeling of wash-and-wear garments was an "alarming fact."



Carpets Booming. Carpet shipments this year will undoubtedly be at the highest level the industry has ever known, both in yardage and dollar volume, according to Paul M. Jones, president of the American Carpet Institute. Through September, shipments from the mills were about 24% ahead of the first nine months of 1959. He estimates that total output for the year will be 147 mil-

1960 Beechcraft models

. . . now available

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BEECHCRAFT — AIRFLEET OF THE TEXTILE INDUSTRY

lion square yards, compared with 122 million square yards in 1958. It is interesting to note that this year's shipments of woven carpets increased at about the same rate as tufted carpets—contrary to the experience of the industry over the past several years.

Truck Unloading Tax. The city of Danville, Va., has imposed a "street usage tax," of from $7.50 (for a truck of one-half ton ca-

pacity or less) to $125 (for a truck of more than three tons capacity). The tax applies to all trucks, including out-of-town trucks, whether loading in the city and unloading elsewhere, or vice versa. Huntsville and Gadsden, Ala., had previously imposed similar taxes.

Test for Flammability, Knitters Warned. The rising popularity of brushed and napped knitted fabrics has led Sidney S. Korzenik, executive director of the National Knitted Outerwear Association, to issue a special warning to the industry, that these fabrics require special testing under the Flammable Fabrics Act.

Shrinkproofing Wool. The Levin Process for shrinkproofing wool, developed in Israel, reportedly will be licensed for use by American firms. The process uses bromine compounds to modify the wool fiber. * * * A wool shrinkproofing process, which when combined with a fabric-setting process produces washable no-iron fabrics, has been demonstrated in Australia. The fabric is treated with potassium permanganate in a concentrated salt solution, followed by clearing with sodium bisulfite. The no-iron treatment which follows is a flat-setting process which involves wetting the fabric with sodium bisulfite solution and steaming damp on a blowing machine.

Next Year Duplicate of 1959? Textile industry sales next year should total about $15.1 billion—

the same as 1959—according to George R. Vila, group executive

Labor-Management News

New Hosiery Contracts. American Federation of Hosiery Workers has signed new contracts with mills in several parts of the country. Most of the contracts call for wage increases and various fringe benefits. The mills: J. W. Landenberger & Co., Philadelphia, Pa.; Real Silk Hosiery Co., Indianapolis, Ind.; Phoenix Hosiery Co., Milwaukee, Wis.; Malna Hosiery Co., Mt. Pleasant, Tenn.; Claussner Hosiery Co., Paducah, Ky.; Wayne Knitting Mills, Fort Wayne, Ind.; and Prim Hosiery Co., Chester, Ill. One-year contracts were also signed with several dyers and finishers in the Philadelphia area, calling for a 7-cent across-the-board increase and some fringes: Jeffries Processors, Inc.; Glenwood Hosiery Finishers, Inc.; Keystone Dyeing Co., Inc.; Jeanette Hosiery Finishers; Tetzner Dyeing Co.; Lee Dye Works, Inc.; Tow Dyeing Corp.; and Universal Dye Works, Inc.

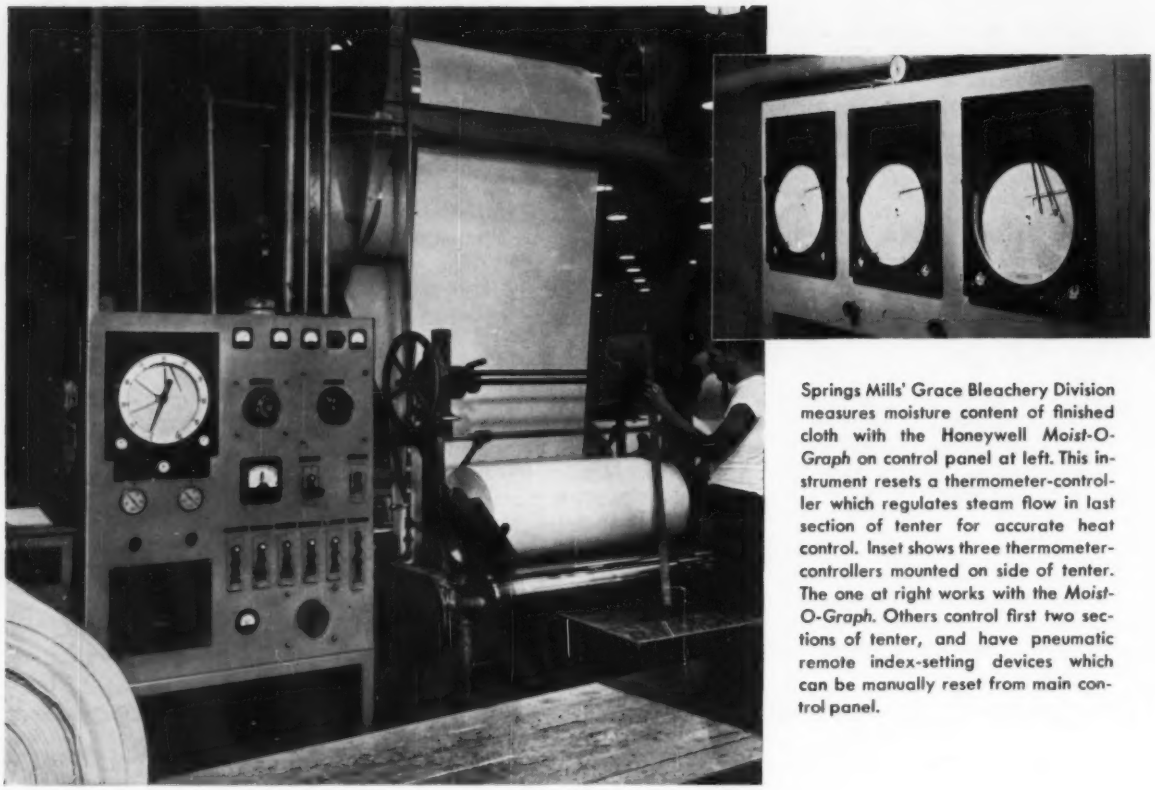
NLRB Splits on New Law. Members of the National Labor Relations Board disagreed 3-2 in their first interpretation of the new labor law. Formerly, the Board permitted a union to appear on a representation ballot without filing non-Communist affidavits; however, if the union won, the Board would not certify it as bargaining agent without the affidavits. In the present decision, the Board majority held that, since the new law repeals the section which denied a union access to the representation and unfair labor practices procedures of the Board unless it filed affidavits, a union need not comply with the filing requirement to be certified if it won the election.

NLRB Absolves Harriet-Henderson. National Labor Relations Board has upheld a trial examiner who recommended dismissal of charges of unfair labor practices filed by Textile Workers Union of America against Harriet-Henderson Cotton Mills, Henderson, N. C.

Newly Unionized. Textile Workers Union of America recently won an NLRB election at Ounegan Woolen Mills, Old Town, Me. (103-57), after two previous unsuccessful attempts. In Pawtucket, R. I., the Standard Thread Converting Corp. recognized TWUA as bargaining agent following a four-day strike by its 60 workers. Other mills signing their first contracts with TWUA include West Coast Woolen Co., Vancouver, B. C.; Circle Bar Knitting Co., Kincardine, Ont.; and Swan Finishing Co., Swansea, Mass., a new plant.

NLRB Finds for Mill. National Labor Relations Board has dismissed charges that Standard-Coosa-Thatcher Co., Chattanooga, Tenn., refused to hire an employee because of his union membership, as charged by Textile Workers Union of America. The TWUA member had applied for reemployment following his release from prison after serving time for income tax fraud. The company declared that he had not been hired because there was no work available at the time.

Labor Dept. Set on New Law. The Department of Labor has set up methods for administering the Labor-Management Reporting and Disclosure Act of 1959, including organization of a new Bureau of Labor-Management Reports. Representatives of the Department in 21 major cities across the country are now available to explain the provisions of the law to interested persons.



Springs Mills' Grace Bleachery Division measures moisture content of finished cloth with the Honeywell *Moist-O-Graph* on control panel at left. This instrument resets a thermometer-controller which regulates steam flow in last section of tenter for accurate heat control. Inset shows three thermometer-controllers mounted on side of tenter. The one at right works with the *Moist-O-Graph*. Others control first two sections of tenter, and have pneumatic remote index-setting devices which can be manually reset from main control panel.

SPRINGMAID FABRICS

Tenter temperature controlled by new *Moist-O-Graph* system at Grace Bleachery

RESULTS:

- Better weight and hand of cloth, because close temperature control assures proper retention of finishes.
- Top quality in resin treated and embossed cloths, which require particularly close control of the drying process.
- Steam savings through increased efficiency in tenter operation.
- Ideal working conditions, because tenter heat is held below excessive limits.

THE INSTRUMENTS: Honeywell *Moist-O-Graph* includes a primary measuring unit (detector roll), an indicating and recording control instrument, and a signaling unit. The detector roll contacts the cloth as it passes over the electrically-grounded idler roll. Small electric current flowing through the cloth is measured by the *Moist-O-Graph* to provide continuous, precise measurement of moisture content.

Honeywell thermometer-controllers, with a calibrated accuracy of $\pm 1\%$ of scale span, record and control tenter temperature. They are highly sensitive, simply designed, ruggedly built.

Your nearby Honeywell field engineer can help you gain the many advantages of instrumentation in your own mill. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

Honeywell

H HONEYWELL

First in Control

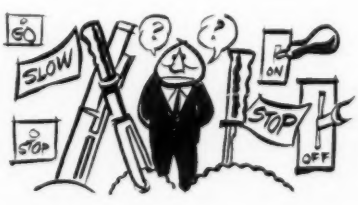
Various decorative effects that can be achieved by inexpensive spray treatments of plastics on garments, seen at recent B.F. Goodrich Chemical Co. textile chemicals show. Process can be done on a production-line basis, eliminating engraved rolls and printing equipment.

vice-president of U. S. Rubber Co. Noting that conditions today are more favorable than at any time in recent years, he cited increases in disposable income and favorable consumers' cash position as responsible.

More Tufteds Shipped. The Bureau of the Census reports that shipments of tufted textiles amounted to $214.7 million during the first half of 1959. This compares with shipments of $210.3 million during the last half of 1958 and $171.6 million during the first half of 1958.

N. C. State Enrollment Up. The School of Textiles at N. C. State College enrolled 74 freshmen this fall, bringing the total student body to 346. This was an increase in freshman enrollment of 57% over last year, while the total enrollment jumped 13%. North Carolinians make up 72% of the student body, with the balance coming from 15 other states and 20 foreign countries.

IFCATI Asks Fewer Controls. At its recent meeting in Vienna, the International Federation of Cotton and Allied Textile Industries adopted a resolution urging all cotton producing countries to support efforts to increase cotton consumption through market research and sales promotion, rather than by commodity controls. Noting that some Latin American countries have taken this latter step to stabilize raw cotton prices, IFCATI declared that intergovernmental controls over the price formation of raw cotton on the world markets will bring prices to an unrealistic level, where they will be uncompetitive with the prices of man-made fibers. The Federation also urged the removal of obstacles which are still in the way of the free functioning of futures markets as a contribution to price stability.



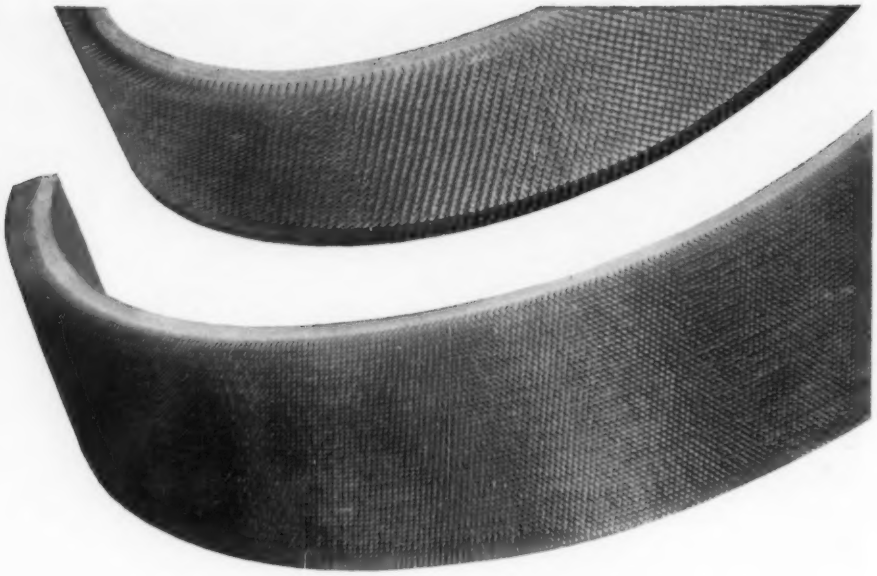
QM Shows Paper Items. Paper items which replace textiles were among new developments displayed at the recent convention of the Quartermaster Association. Included were paper uniforms for

mechanics, bakers, doctors, and nurses; a paper honeycomb cushion for softening the shock when parachuted cargoes hit the ground; and a paper tent, which is still experimental.

Israeli Plant Export-Minded. Officials of the new 20,000-spindle, 210-loom integrated cotton mill in Nazareth, Israel, expect that 85% of production will be exported. The mill is equipped to produce

garments which will carry a "Made in Nazareth" label, which is expected to be a big selling point in Christian countries.

Cotton Support-Price Estimate. National Bank of Commerce, Memphis, Tenn., estimates that support prices for 1960-crop cotton will be about 1½ to 2 cents per pound lower than 1959 in grades middling and better, and 1 to 1½



Regardless of Wire Size or Type of Foundation there is only Top Quality

Tuffer TRADE MARK

For you, that means better carding at lower cost.

A boss carder in a large mill writes, "We save on grinding costs because Tuffer is so accurately ground we can put it on the cylinders as it comes to us."

Precision grinding is but one feature. In all Tuffer clothing, the wires are exactly positioned for uniform height, pitch and angle of every tooth. And the patented Tuffer foundation cushions the wires to shock, while holding them firmly yet flexibly in place.

In standard sizes or in specially engineered clothing, the "Tufferizing" Process guarantees consistent quality.

TUFFER PRODUCTS

- Card Clothing for Woolen, Worsted, Cotton, Asbestos and Man-made Fibers
- Napper Clothing and Brushes
- Top Flats re-covered and extra sets loaned at all Plants
- Lickerins rewired at Southern Plants
- Hand Stripping Cards

HOWARD BROS.

WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C., Greenville, S. C.

Direct Representation in Canada

591

cents lower in grades below middling and for light spotted cotton. The estimated "A" purchase price for middling inch Memphis for 1960 is 32.66 cents (it was 34.35 cents in 1959); estimated "B" loan is 26.88 cents (28.65 cents in 1959); and estimated CCC resale price (10% above "B" loan) is 29.57 cents (31.52 cents for the 1959 crop).

N. C. Polymer Center. The Camille and Henry Dreyfus Foundation has made a grant of $2,500,000 for the establishment of an international center for polymer chemistry at North Carolina's new Research Triangle Institute. The new research center will be known as the Camille Dreyfus Laboratory, in memory of Dr. Camille Dreyfus, who was the founder and first president of Celanese Corp. of America.

Another Wool Promotion Group. The formation of still another organization to advertise and promote American wool and wool products has been authorized by the American Sheep Producers Council. It will function as a division of ASPC, and reportedly will cooperate with other promotional organizations.

Imports—They Could Be Worse. For the first seven months of 1959, 92% of Japan's exports of cotton yarn and 51% of her exports of cotton fabrics went to other Asiatic countries, according to Japan-U.S. Textile Information Service.

Merchandising Notes

Callaway Mills' "Captivation" is the first loop-pile carpet to be awarded Allied Chemical's "Certified for Performance" label. It is now being featured in promotions by carpet retailers across the country.

Chemstrand Corp. has scheduled its largest and most intensive promotion in the men's wear field for fall 1960, centered on slacks made with Acrilan acrylic fiber.

Du Pont Co. has published a 16-page buying guide designed to aid customers in selecting carpeting. It is being distributed by more than 10,000 retailers who sell carpeting made with a Du Pont nylon pile. * * * Du Pont engineers have developed a nonslip shoe lace made of Taslan textured nylon yarn.

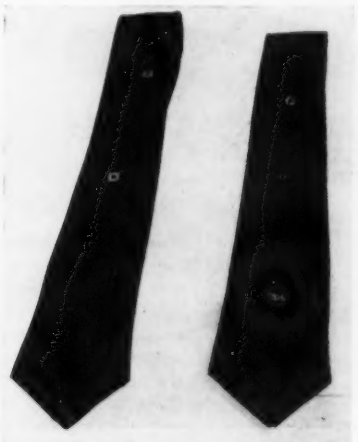
Holt Hosiery Mills, Inc., will start delivery next month of women's seamless hosiery made with multifilament yarns. The new line includes two 474-needle numbers in 20 denier, and one 400-needle number in 30 denier.

Riegel Textile Corp. is marketing a pinless diaper, under the trademark "Presto Chango." The diaper uses Velcro fasteners.

J. P. Stevens & Co. is supplying "Made in America" tags to retailers for use on garments made of the firm's cotton fabrics.

Merit awards were won by these packages in the 4th Annual Flexible Packaging Competition. Left: Cellophane bag by Adams-Millis Corp. Right: Polyethylene bag by Southerland Mills.

"Man-sized" handkerchiefs—each 324 sq in.—are packaged in transparent polyethylene film. Sold by Southern Handkerchief Mfg., Co., Greenville, S. C., they come three to a package.

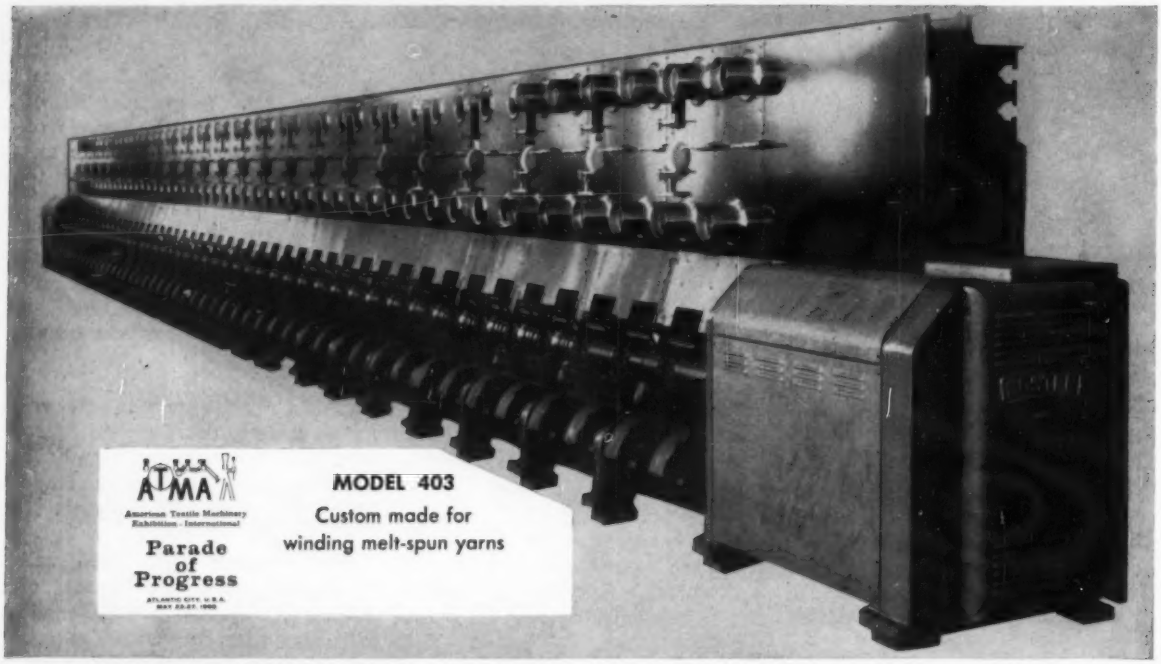


Christmas gift suggestion: Neckties (produced by several well-known companies) with crush-proof Fiberglas backing (about $1.50).

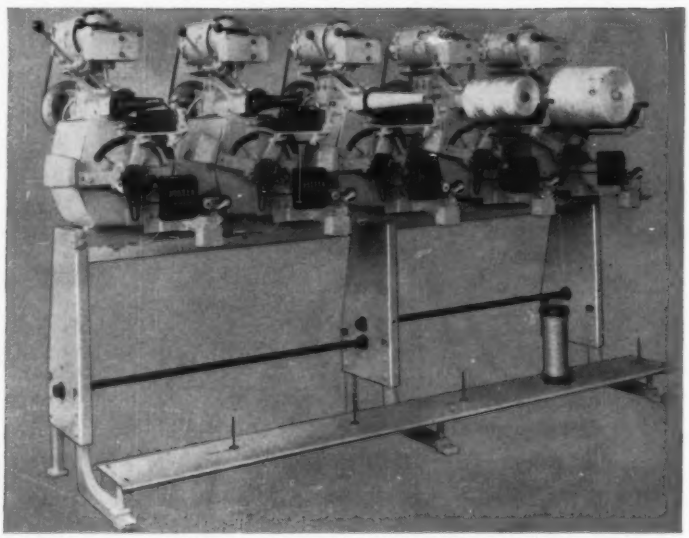
FOSTER CUSTOM MADE EQUIPMENT

For Takeup Winding of Man-Made Fibres

615-B



TENSIOMATIC — Adaptation for winding wetspun or dry-spun yarns.



MODEL 78 — Standard for winding wet-spun or dry-spun yarns.

We have had years of experience in designing and manufacturing custom made equipment for the takeup winding of man-made fibres — melt spun, wet-spun and dry-spun. Our customers in this field include some of the biggest producers, both in this country and abroad.

Whether you require a machine that is custom made throughout, or an adaptation of one of our standard models, we will be glad to work with your engineers in the strictest confidence.

Additional information on request.

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

Southern Office— Johnston Bldg., Charlotte, N. C. *Canadian Representative* — Ross Whitehead & Company Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ont. *European Representative*—Muschamp Textile Machinery (Sales) Limited, Eider Works, Wellington Road, Ashton-Under-Lyne, Lancashire, England

RECENT TECHNICAL AND COMMERCIAL DEVELOPMENTS

by J. B. Goldberg
Consultant to the Textile and Allied Industries

Exclusive

FIBERS AND YARNS

Orlon for Carpets? It has been reported that Du Pont is preparing a special Orlon acrylic staple for use in the manufacture of carpets.

"Lycra" Spandex Fiber. Du Pont has disclosed plans to enter commercial production of "Lycra" elastomeric fiber (formerly called "Fiber K") at Waynesboro, Va. This fiber has about ⅓ lower specific gravity than conventional elastic thread, gives longer wear and has 2-3 times as much restraining power. Dyeability and high resistance to perspiration and cosmetic oils and lotions are also featured. Anticipate major applications in foundation garments, but evaluations have also been made in surgical stockings and swimwear. Price of "Lycra" ranges from $9.80 per lb for 70-denier to $4.75 for 560-denier.

Puffing Nylon Type Fibers. A recent U. S. patent issued to a Swiss inventor discloses a technique for making aerated synthetic hydrophobic polyamide fibers resulting in the production of voids within the fiber without breaking the walls or surfaces.

Improved Stability of Polypropylene Fibers. A British patent assigned to the Montecatini interests in Italy describes a method for increasing stability of polypropylene fibers by heating under tension.

Improving Dyeing of Polyvinyl Alcohol Filaments. A method for preparing filaments with improved dyeing properties and resistance to boiling water has been patented by the Kurashiki Rayon Co. and Air Reduction Co.

French Acrylic for Courtaulds. Britain's Courtaulds Ltd. has created a new company, Courtaulds France S. A., to produce "Courtelle" acrylic fiber in France. First production is expected in early 1961.

Du Pont Co. has announced production of Orlon 21 staple in 3- and 6-denier sizes with a "reversible crimp." This crimp, said to be obtained through chemical and physical properties as the fiber is extruded, rather than by mechanical methods, persists through dyeing and repeated home washings. The curl is removed in the presence of water, but returns completely on drying. Tow is under development and will be available at a later date. Orlon 21 is priced at $1.53 per pound, compared with 94 cents and $1.28 for other Orlon types.

FABRICS AND FINISHES

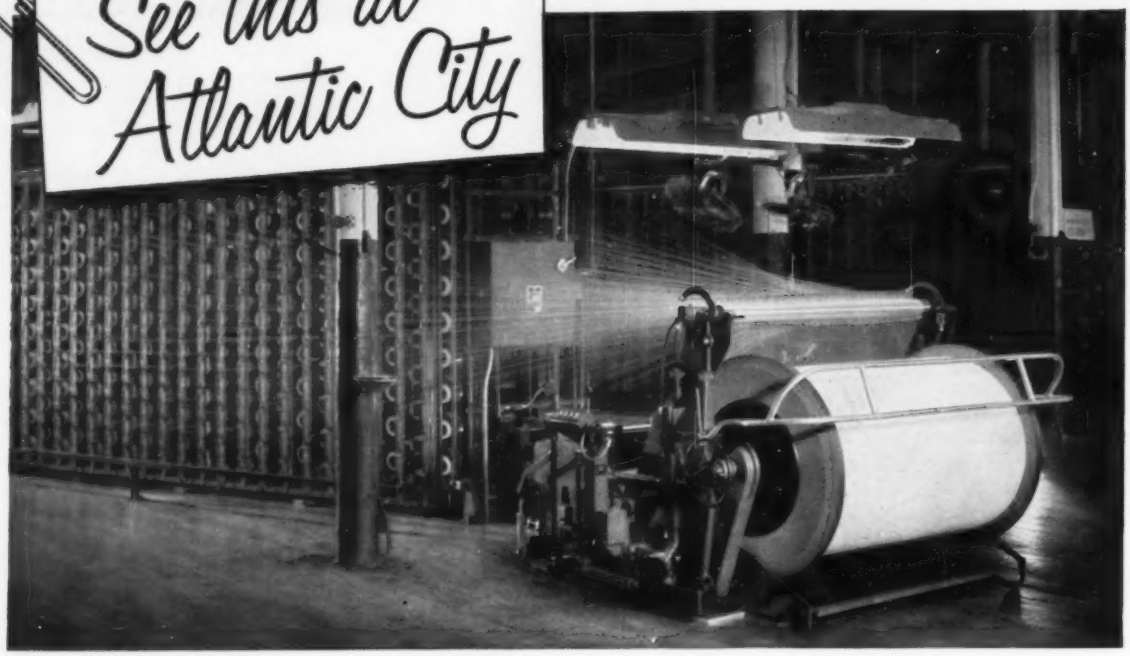
Crepe Fabrics. Japanese inventor received a U. S. patent on the production of synthetic crepe fabrics by imparting high twist in one direction to a synthetic yarn, heat-setting, then reverse twisting beyond the zero point, sizing, and drying the yarn. These yarns are then woven as alternate wefts in the fabric, partly desizing the grey goods at below 70 C, then scouring, shrinking, and steaming.

Dyeing Polyolefin Fibers. French institute reports new process for dyeing polyolefin fiber, with best results obtained on polypropylene. Fiber, fabric, or film is dipped in an undisclosed chemical reagent for one minute, rinsed to remove excess agent, then dyed with any acid or basic color. Cost of reagent said to be under 30c per lb and is used in 10-20% concentration. French patent applied for and Japanese and U. S. producers are to be contacted as possible licensees.

No-Iron Woolens. Australian Commonwealth Scientific and Industrial Research Organization to identify washable woolen fabrics produced by new process as "Si-

(Continued on page 87)

See this at Atlantic City



BARBER COLMAN

BIG PACKAGES and BIG BEAMS

The development of process machinery to handle larger packages and wind larger beams has introduced important economies in mill operation. See these new ideas in action at Atlantic City. Learn how you can benefit by using these methods in *your* mill.

AMERICAN TEXTILE MACHINERY EXHIBITION

ATLANTIC CITY

ATLANTIC CITY, N.J.
MAY 23-27, 1960

SUPER-SPEED WARPERS

Watch the new Barber-Colman Super-Speed Warper and Creel in operation on typical yarns. This great machine is redesigned throughout for better economy, easier operation, and improved performance. In addition, the Barber-Colman exhibit will present many other interesting and up-to-date ideas of substantial value. *Plan now to visit the big show at Atlantic City.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

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EXECUTIVE VIEWS

Is the cotton classer here to stay?

by Charles H. Ward
Highland Cotton Mills

Exclusive

WHILE enjoying a vacation last summer in the sun at the beach and in the cool air at the mountains, the problems of production at the mill got a review. "New-crop cotton" flashed into thought, leaving an uncomfortable feeling.

Now air conditioning is working on the "dog days" problem, but what about that natural fiber, "king cotton"? Is cotton still "king" of the fibers? Who can say—and who cares?

The cotton grower cares because he makes his living growing the stuff, but the cotton mill overseer wants to know what is being done to improve his running conditions. Well, a great deal has been done, some of which has been offset by higher speeds, higher drafts, and shorter processing. Your cotton buyer, cotton classer, and this new man they call the cotton technologist are busily performing the service of making your cotton raw material respond to high-production carding and high-draft spinning.

THE FIRST THING your cotton man does is to keep in close touch with someone you never see—the cotton breeder and the cotton ginner. Now the breeder and the ginner are in business for themselves, but they must satisfy their customers; namely, your cotton buyer and classer. Admittedly, the breeder could do better, but at the expense of lowering his yield. Maintaining the same yield, he has done wonders, especially in staple length and specific fiber properties.

The ginner is the man who catches the blame. He has been accused of overheating, overbeating, and overcleaning, but he has his problems too.* He is going to gin just as fast as the cotton will stand and clean just as much as the grader will take.

Your cotton buyer knows the ginner's practices. He knows just about what variety is best suited for the needs of the specific mill for which he is buying. He is familiar with ginning practices throughout the cotton belt and "hands off" is the by-word if he feels that a particular lot will run production cost up or quality down. The cotton buyer and the cotton classer work hand-in-hand with scrutiny seldom surpassed by the merchant.

NOW, WHAT ABOUT this new fellow, the cotton technologist? He hasn't quite come into his own yet, but a few more streaks from the dye house or sudden drop in strength of finished product or sharp climb in nep count and he will be in business. He is already a key figure in many organizations, although others still rely on personal judgment. Aside from actual classification, that is grade and staple, which is done solely by your cotton classer, there are at least fifteen separate accepted tests that can be performed on the raw material cotton.

To the spinning or carding overseer, further testing of cotton sounds like the answer to some of his problems, which he is sure are caused by poorly selected raw stock. On the other hand, testing takes time and costs money. Where do we start, and where do we stop?

One of the most widely accepted and one of the fastest tests now almost universally relied upon is the Micronaire test for fineness and maturity. Your cotton buyer knows cotton with fibers too coarse will run the ends-down in the spinning above accepted standards. There are fewer fibers in a yarn cross section. He also realizes fibers too fine are likely to be immature and cause streaks in the finished prod-

*For a ginner's lament, see "The Ginner Has His Problems, Too!" in TEXTILE INDUSTRIES for October, 1958, pp. 171-172.—The Editors.

Using Salt Efficiently

by INTERNATIONAL SALT COMPANY, INC.

Only one salt dissolver delivers fully saturated brine at lowest cost

It's the Sterling Lixator—a fully automatic rock salt dissolver developed exclusively by International Salt Company for making 100% saturated brine from economical Sterling Rock Salt. The Lixator needs no maintenance. And it produces a rock salt brine so pure and clean that it can be used in numerous operations formerly thought to require evaporated salt. Here's why the Lixator is now being used in so many industrial plants . . .

Lixator has no moving parts—nothing to get out of order.

Downflow principle. After water is admitted into the Lixator, it flows *down* through the rock salt in the dissolving zone.

Brine is self-filtered for maximum purity. There is no sand or gravel filter bed to bother with. Instead, rock salt crystals in the lower portion of the Lixator completely filter the saturated brine.

Fully automatic. Whenever brine is drawn off, water is automatically admitted into the dissolving chamber to make more brine. Rock salt flows in from a Lixator hopper or down a chute from an overhead bin. The only requirement is to keep the storage section filled with Sterling Rock Salt.

Great flexibility. The Lixator can be placed anywhere in the plant, at a point most convenient for salt delivery. *Pipes* deliver brine to points of use.

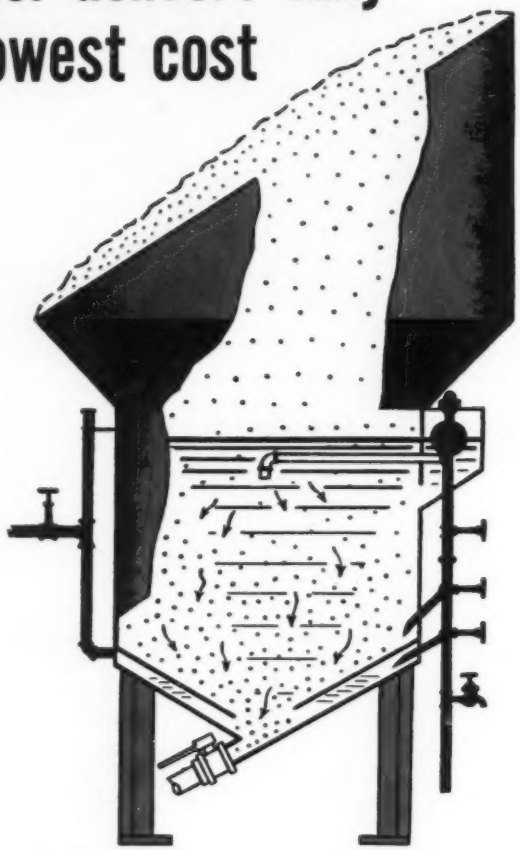
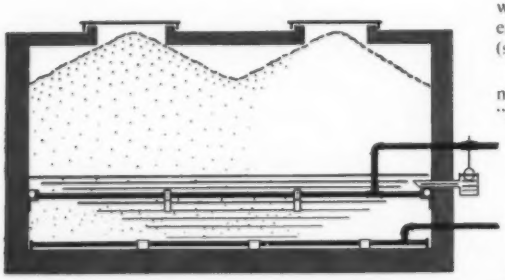


Diagram of Sterling Model Lixator. This is today's most widely used rock salt dissolver. It's available in many standard sizes—from 24″ to 120″ in diameter . . . with brine-making capacities up to 6,000 gallons per hour. Lixators come in enameled steel, Monel metal, or corrosion-proof plastic . . . with storage hoppers (standard low-lip, wall-type, cylindrical, corner, etc.) to suit any plant requirement.

For information on how your plant can save money with a Lixator, contact the nearest International Salt Company sales office. You can also get a free copy of "Brine for Today's Industry"—which fully describes the Lixate Process.



▲ **Diagram of Sterling Storage Lixator.** Designed for larger operations, the Storage Lixator is a combination salt storage, salt dissolving, and brine storage tank. On delivery, Sterling Rock Salt is unloaded directly into the Lixator. Lixate Brine is made automatically, as it is in every type of Lixator.

International Salt Company, Inc., Scranton 2, Pa. • Sales Offices:

Boston, Mass.	Chicago, Ill.	Newark, N. J.	Philadelphia, Pa.
Buffalo, N. Y.	Cincinnati, O.	New Orleans, La.	Pittsburgh, Pa.
Charlotte, N. C.	Detroit, Mich.	New York, N. Y.	St. Louis, Mo.

Service and research are the extras in

STERLING SALT

INTERNATIONAL SALT COMPANY, INC.

EXECUTIVE VIEWS

(from page 65)

ucts as well as certain other quality marks.

Many cotton mills warehouse their cotton by various Micronaire ranges. Almost all mills have every bale tested and hold to range limits in their buying contracts.

WHAT ABOUT maturity? Four or more separate methods of determining the maturity of raw cotton are accepted in the trade. Almost all cotton spinning mills employ one of these to some degree. Here again, your cotton buyer with his alert judgment comes into play because every year there will be one or more areas that tend to produce large quantities of immature cotton. Here the quality of yarn appears sharply in the form of evenness, smoothness, less waste, and more even color.

In some finished cotton textile products strength is of primary importance. Another test accepted by the trade is the Pressley method for determining fiber strength. Here again, cotton buying contracts hold to certain range limits and every bale is tested and blended accordingly. Bales not testing up to buying contract limits are rejected and shipped.

There has been on the market for some years a machine called the Cotton Colorimeter. It is relatively expensive and therefore mostly used by larger textile firms. The operation of this tester is unbelieveable, yet it performs without mistake. The cotton sample is placed over a receiving plate and the exact color is immediately known. Once again, personal error no longer enters the picture in evaluating cotton.

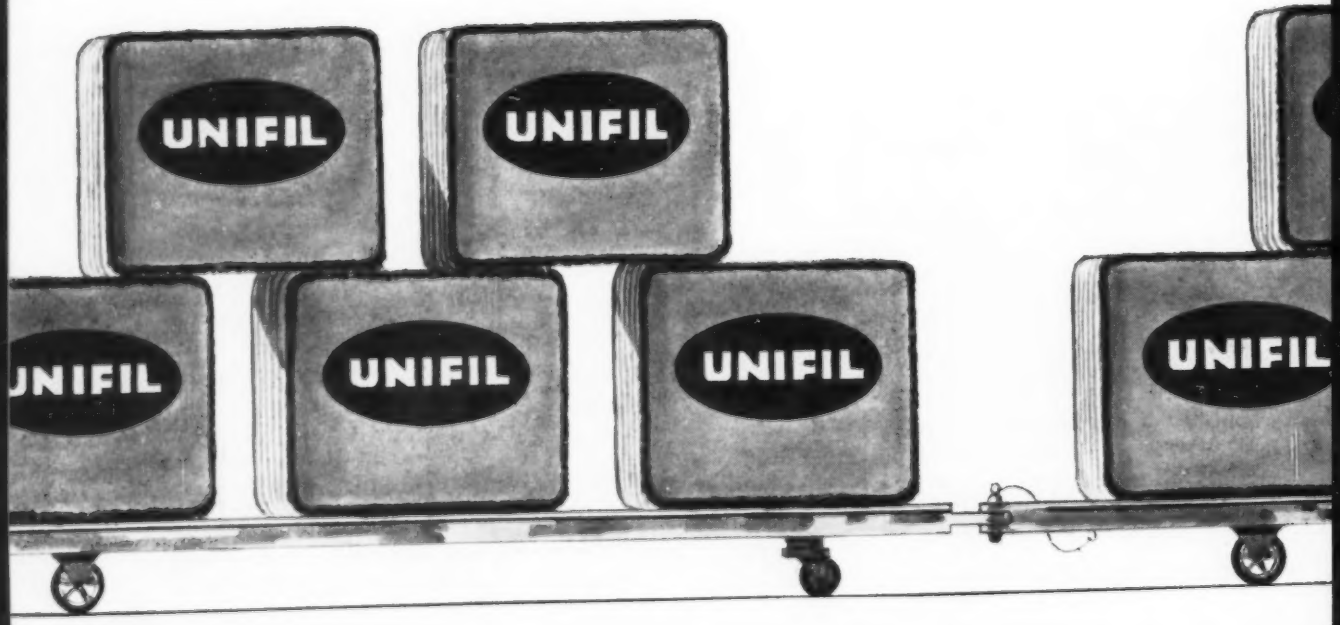
It might seem that the wonders of modern testing machinery will soon put the cotton classer out of business. This is far from the case. Your cotton classer has adopted these various testing instruments as an aid to his own judgment.

A good cotton classer is still one of the best friends the spinning and carding overseer has. He knows your finished product. His judgment of character and spinnability is still a better guide than any machine on the market.

FUTURE EVENTS

Date		Event	Location
Dec.	3	Seminar on Contractile Mechanisms in Fibrous Macromolecules sponsored by Textile Research Institute	TRI Princeton, N. J.
	4	Western New England Section AATCC	Hartford, Conn.
	4	Delaware Valley Section AATCC	Philadelphia, Pa.
	4	Northern New England Section AATCC joint symposium with ASME Textile Engineering Division	Smith House Cambridge, Mass.
	4	Rhode Island Section AATCC	Johnson's Hummocks Grille Providence, R. I.
	5	Piedmont Div., Southern Textile Association, 9:30 A.M.	Johnston Memorial YMCA Charlotte, N. C.
	5	Southeastern Section AATCC	Atlanta Athletic Club Atlanta, Ga.
	11	Niagara Frontier Section AATCC	Buffalo, N. Y.
	17	Seminar on Formation of Polymer-Blend Fibers sponsored by Textile Research Institute	TRI Princeton, N. J.
1960			
Jan.	15	Hudson-Mohawk Section AATCC	Chelsea House Tribes Hill, N. Y.
	15	Metropolitan Section AATCC	Hotel New Yorker New York City
	22-23	Piedmont Section AATCC	Poinsett Hotel Greenville, S. C.
	25-28	Plant Maintenance & Engineering Show	Convention Hall Philadelphia, Pa.
Feb.	8-9	National Cotton Council annual convention	Dallas, Texas
	18-19	American Society for Quality Control Textile Section annual conference	The Clemson House Clemson, S. C.
Mar.	1-4	ASTM Committee D-13	Sheraton-Atlantic Hotel New York City
	10-11	Fiber Society	Roosevelt Hotel New Orleans, La.
	24-25	Textile Research Institute annual meeting	Hotel Commodore New York City
April	7-9	American Cotton Manufacturers Institute annual meeting	Americana Hotel Bal Harbor, Fla.
	20-22	Alabama Textile Manufacturers Association annual convention	The Buena Vista Biloxi, Miss.
	21-23	National Association of Hosiery Manufacturers annual convention and Hosiery Industry Conference	Americana Hotel Miami Beach, Fla.
	22	Textile Institute annual meeting	Midland Hotel Manchester, England
	26-27	Institute of Textile Technology Technical Advisory Committee and Board of Directors	I.T.T. Charlottesville, Va.
	29	Underwear Institute annual meeting	Hotel Biltmore New York City
May	19-21	Georgia Textile Manufacturers Association annual meeting	The Diplomat Hollywood, Fla.
	23-27	American Textile Machinery Exhibition	The Auditorium Atlantic City, N. J.
	25-28	Tufted Textile Manufacturers Association annual convention	The Fountainebleau Miami Beach, Fla.
	26-28	South Carolina Textile Manufacturers Association annual convention	The Cloister Sea Island, Ga.
May 31-June 2		Cotton Research Clinic	Grove Park Inn Asheville, N. C.
June	23-25	Southern Textile Association annual meeting	Grove Park Inn Asheville, N. C.
Sept.	27-28	Chemical Finishing Conference sponsored by National Cotton Council	Statler Hotel Washington, D. C.
Oct.	3-7	Southern Textile Exposition	Textile Hall Greenville, S. C.
	5-8	Carded Yarn Association annual meeting	Grove Park Inn Asheville, N. C.
	6-8	AATCC national convention	Sheraton Hotel Philadelphia, Pa.

Thousands On Their Way ...Helping Mills



The outstanding versatility and uniformity that UNIFIL® Loom Winders provide are enabling mills everywhere to enter markets they never even considered before! With cotton, synthetic or textured yarns, progressive mills are producing fabrics in an almost limitless variety of hand, patterns, and surface effects. And . . . they're doing it with maximum economy of operation.

Initial step toward wider markets in many of these mills was a comprehensive study of filling yarn preparation methods, using the Leesona "Profit Factor Analysis." This thorough examination of methods and equipment carried out by Leesona Engineers showed precisely how UNIFIL Loom Winders could increase the scope of weaving operations as well as reduce production costs and improve quality. Very often analysis results proved conservative compared to actual performance. Most mills *reordered*.

UNIFIL Loom Winders can provide all the advantages of weaving-from-the-cone in *your* mill — by bringing the entire process of filling yarn preparation to the loom. They'll greatly improve the quality of fabrics woven from fine yarns . . . give fabrics with textured yarn filling a uniformity not possible before. Let a "Profit Factor Analysis" show you how UNIFIL can help your weaving operations. Ask your Leesona Sales Engineer in Boston, Philadelphia, Charlotte, Atlanta, or Los Angeles. In Canada: Montreal or Hamilton. Or write Leesona Corporation, P. O. Box 1605, Providence 1, Rhode Island.

Here are just a few of many modern mills which are saving with UNIFIL Loom Winders:

J. P. STEVENS & CO., INC.
BURLINGTON INDUSTRIES, INC.
PONEMAH MILLS
DRAYTON MILLS, INC.
JUDSON MILLS
UNITED MERCHANTS & MFRS. INC.
GLEN RAVEN SILK MILLS, INC.
EXPOSITION COTTON MILLS
GREENWOOD MILLS
FRANK IX & SONS, INC.
MARION MFG. COMPANY
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STRASBURG TEXTILE MILLS, INC.
RICHARD TEXTILES
CADILLAC TEXTILES, INC.
AMEROTRON CORPORATION
SPARTAN MILLS
WOODSIDE MILLS
WAUMBEC MILLS
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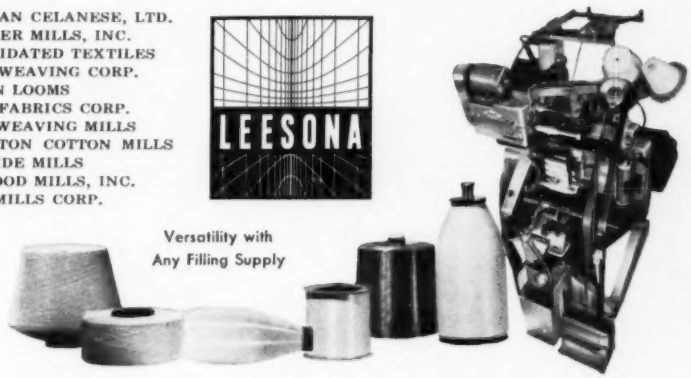
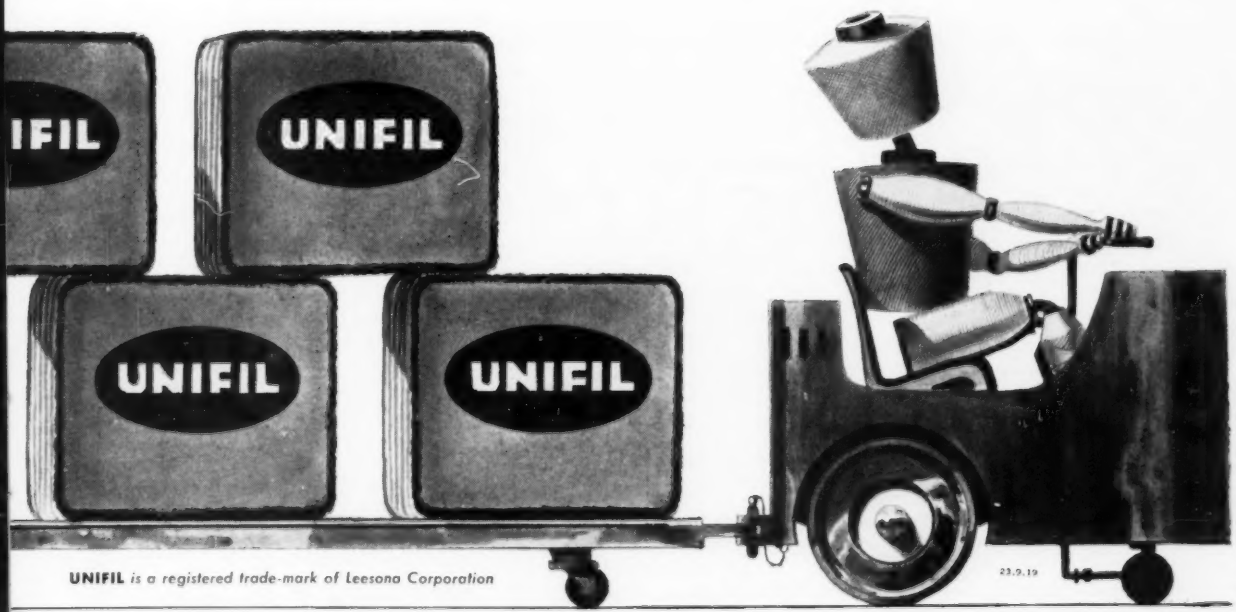
CHRYSLER MILLS, INC.
CONSOLIDATED TEXTILES
KALCO WEAVING CORP.
MARVEN LOOMS
PAXON FABRICS CORP.
PANSY WEAVING MILLS
PEPPERTON COTTON MILLS
RIVERSIDE MILLS
STANWOOD MILLS, INC.
STARR MILLS CORP.

LEESONA



Expand Markets



UNIFIL *is a registered trade-mark of Leesona Corporation*

23.9.19

Work with your AIM*. . . Belle-Vue Mills Div., does . . .

New Acme Steel Strapping Tool speeds baling

Acme Idea Man E. S. Lumpkin aids the Belle-Vue plant and many other companies with materials handling problems.

BELLE-VUE MILLS DIV., WELLMAN OPERATING CORP., HILLSBORO, N. C., with the help of their Acme Idea Man, sought a way to make baling their fabrics faster and easier. (Idea No. S6-10)

The new B-5 Stretcher proved a good answer. The bales are still processed in the same way—enclosed with asphalt impregnated paper, loosely encircled with steel strapping, and then compressed. But then the B-5 takes over, and makes the tensioning operation much easier and noticeably faster. Using this method, one man produces about 40 bales a day—all strong and secure.

Workers like the new B-5 Stretcher, too. This light, strong tensioning tool can be used in most any application and works equally well in any operating position.

***Work with your Acme Idea Man.** He is aware of the latest time and money-saving solutions to materials handling problems. Call or write Dept. TIS-129, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Limited, 743 Warden Ave., Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

Textile Industries
FOR DECEMBER 1959

Fiber reactive dyes

Brilliance and wet fastness by direct chemical reaction

Staff prepared
Exclusive

THE FIRST fiber reactive dyes for cellulose were introduced in 1956 by Imperial Chemical Industries, Ltd., and marketed in the U. S. by Arnold, Hoffman & Co., Inc., under the trademark "Procion." Since then two other dyestuff manufacturers have entered the market. Ciba Co., Inc., shortly began to market "Cibacrons" for cellulose and an extended line for wool under the trademark "Cibacrolan." And the Carbic-Hoechst Corp., the most recent entry, began marketing fiber reactive dyes under the "Remazol" trademark.

The dyestuff industry is studying the potential of this new and expanding group of dyes, which exemplify a new concept in the attachment of color to fiber by chemical reaction. It is quite probable that other companies will join in the competition as industry-wide evaluations reveal more about the size of the ultimate market.

The extent to which fiber reactive dyes have grown could not be learned at the time of this writing, in the fall of this year. For one thing, a study of the numerous methods by which color is applied to fiber, yarn, and fabric would have entailed a survey of the widest scope. Besides, in a number of mills evaluations were not complete and methods of application were not fully developed. Thus the articles that are to follow in this series will be limited to several segments of cotton wet processing: printing and dyeing of cotton fabrics, and package dyeing of cotton yarn.

We did not propose to learn the extent to which fiber reactives are used on fibers other than cotton, though reports indicate that their extension into man-made fibers has already taken place. As previously mentioned, fiber reactives are already finding use on wool, and one printer has reported progress in their application to silk. And of course they are used on rayon.

What Are Fiber Reactives? The designation, fiber reactive dye, which has come into common usage, applies to all commercially available products—Procions, Cibacrons, and Remazols — even though distinctions in chemical structure and in properties exist among them. The earlier Procions were characterized by high reactivity and cold dyeing properties, while the later products, marketed under the trademark Procion H, are for practical purposes identical

This is the first in an exclusive series of four articles on the fiber reactive dyes —their chemistry, application, and uses. The second article, which describes how one plant uses them in package dyeing, appears in this issue, starting on page 74. A third article, dealing with the use of the fiber reactives in printing, will be in TEXTILE INDUSTRIES for January, 1960; and the final article, a detailed discussion of dyeing with the fiber reactives, is scheduled for the February issue.

Stages in Application of Fiber Reactive Dyes

1. Diffusion stage. Color penetrates fiber after application from aqueous solution.

2. Reaction stage. Color reacts with cellulose under catalysis of mild alkali. Simultaneous reaction takes place between color and water.

3. Washing-off stage. Removal of colored by-product to achieve best fastness properties.

Color in fiber, alkali concentration, and temperature are the requisites to chemical reaction. Time required for completion of reaction under practical conditions depends on method of application, ranging from less than one minute to several minutes.

with the Cibacrons, both being of medium reactivity with hot dyeing characteristics.

The Remazols as a class are chemically different from the Procions and the Cibacrons. They have been described (1)* as vinyl-sulfon reactive dyestuffs; while the Procions of the cold-dyeing type are referred to as cyanuric-dichloride reactives, and the Procion H and Cibacron types as cyanuric monochloride reactives.

To cotton, the fiber reactives offer wider styling possibilities. In the past, brilliancy of a high degree and wet fastness were not associated together. But now, on certain constructions and on mercerized fabrics particularly, a genuine, silk-like appearance can be achieved. In printing, the quality of brilliancy offers a distinct advantage. A brilliant ground shade can be application printed in the popular styles of today without excessive saddening of print color hue falling on the ground, or of color falling on printed color.

The stages in the application of fiber reactives allow use of conventional equipment. Penetration of fiber, followed by instantaneous reaction and subsequent removal of unfixed dye, can be carried out on equipment and facilities used in yarn and fabric dyeing and printing. In fact, their application to fabrics in dyeing offers a variety of routes.

Fiber Reactives—Pro and Con. To compare fiber reactives as a group with other color classes would prove only of general interest since every color class possesses colors varying in cost, in behavior, and in fastness properties. Moreover, in any analysis it is necessary to specify the requirements of end usage and make an appraisal of the method of application, together with a study of the economics of applying color at increasing strengths. However, the high initial cost of the fiber reactives, which reportedly ranges between that of a good direct dye and a high-priced vat, must somehow be offset, in the form of advantages during application, in specific advantages in end usage, or in satisfaction to the consumer.

One other factor, besides the high initial cost, enters into the economics of evaluation. This centers around the chemical reactions which occur simultaneously between dyestuff and cellulose, and between dyestuff and water, on what may be regarded as a competing basis.

There is an abundance of published material on this subject, already well known to research workers and practical colorists. For the purpose of this paper and the articles that are to follow, it would be of no value to review the literature which is growing constantly both here and abroad. However, in articles (1), (2), and (3), just to mention a few published works, reference is made to the chemistry of fiber reactives and the principles governing their application, together with listing of chemical structures and reactions.

The unfixed dye, product of the side reaction between dyestuff and water, is regarded by colorists as a shortcoming. Besides raising costs appreciably at higher color concentrations, its removal from the fiber can be a problem where high processing speeds are used, but complete removal is essential to achieve best fastness properties.

The rapidity with which chemical reaction takes place between dyestuff and cellulose is in most methods of application an advantage. However, it must be remembered that other color classes can be applied to cotton fabrics at high speeds, though attachment of color to fiber is not by chemical reaction. The short time of reaction becomes an advantage if higher speeds can be used in continuous methods of dyeing; or if a continuous method can replace a slower dyeing method, such as dyeing on the jig.

Their application, however, is not altogether as simple as the nature of the chemical reaction suggests. When the fiber reactives were first introduced, the tendency was to oversimplify application. But this attitude was soon dispelled after the first plant trials were made.

In certain dyeing methods, distribution of color into fabric uniformly and without migration posed some problems requiring not only adjustments in formulation and sensible use of equipment, but attention to detail along the way. Problems in dyeing also arose from the reactivity of fiber reactives with products (possessing OH groups) that were carried over in the fabric. In printing, formulations and moisture control were found to be critical.

In general, fiber reactives have met with some successes. Some colors among the three commercially available groups caught on rapidly once their advantages became recognized. Others, however, still remain in less demand. Print stylists were among the first to see their possibilities, despite a higher color cost. They soon set to work creating patterns which produced a lustrous, silk-like appearance on selected cotton constructions. But the fiber reactives are not the complete fulfillment of the colorist's dream of utter simplicity in application and unsurpassable fastness properties. While vat dyes require greater exactness in application they still rank high-

*Numbers in parentheses are references at the end of this article.

er in all-round fastness properties.

They Have Shortcomings. As a group, though a heterogeneous one, the fiber reactives have suffered from several shortcomings. While there are individual colors which possess resistance to chlorine, others cannot be used if there is possibility that the end use article will require or will receive a chlorine laundering. Though it is generally conceded that there is less likelihood of bleaching garments which are dyed or printed, or which contain even small proportions of color, this decision must be left to the consumer. Quite often the treatment in household bleaching is severe; this, too, is beyond the control of the finisher and garment manufacturer.

In resin treatment, two problems have received attention: change of shade and loss of light fastness. These problems are not altogether new to finishing plants. Other dyestuff classes can be adversely affected by resin treatment. In fact, change of shade upon resin treatment is a problem that dyer and finisher live with every day.

Loss of light fastness can be minimized by careful selection of resins and sound formulation. The latter problem in particular is receiving intensive investigation, and reports from the industry indicate that specific resin types prevent the loss of light fastness. Meanwhile, resin treated fabrics, dyed and printed with fiber reactives, have been successfully merchandised and appear to be gaining in popularity among stylists.

The Future of Fiber Reactives. It is too early to assess the fiber reactives, and thereby predict their ultimate status in the dyestuff picture, for new and improved dyestuffs are being developed. Whether the fiber reactives will substantially cut into markets held by other dyestuffs, or whether they will gain a definite position among them, must yet be shown. Conceivably, they need not only be used to produce brilliant shades—a principal reason for their use thus far. But in such case they must compete more on a basis of cost.

As mere conjecture, it is interesting to point out that large quantities of yarns and fabrics are dyed with colors of the direct class. According to one dyestuff industry executive, this field of application represents a huge market for dyes of the fiber reactive type.

From a practical standpoint, the side reaction between dyestuff and water must certainly be regarded as a shortcoming, for it represents a loss that is quite substantial as color concentration is increased. For ultimate simplicity in application and for greatest economy, then, some practical means must be developed for reducing the extent to which dyestuff reacts with water. It may be that research chemists can synthesize dyestuffs which will possess a decidedly stronger attraction for the OH groups of the cellulose molecule; or better still, that they can synthesize dyestuffs which will not possess dual reactivity.

Acknowledgment

Background material for this article, and the ones to follow in the series, was obtained in discussions with executives, supervisors, and chemists in dyeing and finishing plants; and with officials of the three principal U. S. suppliers of fiber reactive dyes—Arnold, Hoffman & Co., Inc.; Ciba Co., Inc., and Carbic-Hoechst Corp.

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43% more wool used for worsted fabrics

■ A SIDELIGHT on the dramatic recovery of apparel wool consumption by U.S. mills in the first eight months of this year was the 43 per cent increase in raw wool consumption in the production of worsted fabrics, The Wool Bureau reports. The increase was more than double the gain experienced in wool consumption for woolens, it was pointed out.

Total mill consumption of raw wool in this period was 32 per cent ahead of the corresponding 1958 period, and the Bureau says this increase has contributed to restoring wool's share of all fibers consumed in woolen spinning and worsted combing operations to 49 per cent, compared with 45 per cent last year.

Worsted fabric production for the January-June period (latest figures available) was 30 per cent ahead of last year's figures, compared with a 13 per cent increase for woolens. The output of men's and boys' wear wool fabrics jumped 21 per cent in the same period, compared with a 14 per cent increase in women's and children's wear fabrics.

The organization states that supplies of wool at the beginning of the year proved far too low to meet mill requirements. They were augmented by considerably bigger imports than the volume that has prevailed since 1954. During the first seven months, apparel wool imports of 66 million pounds, clean basis, exceeded the 1958 volume for this period by two-thirds.

Should mill consumption for the remainder of the year continue at the average January-July rate, the monthly rate of imports will have to increase by at least 50 per cent to meet all requirements, according to the announcement. This means that the entire domestic clip of 130 million pounds would be consumed, while total apparel wool imports would reach 137 million pounds, clean basis.

During January-July, imports of wool fabrics reached 37 million square yards, an increase of 23 per cent over the corresponding 1958 volume. The Bureau notes that several small specialty yarn and fabric mills have been opened in this country during the past year—possibly the American wool industry's answer to competition from the specialty fabrics which have comprised a large part of the imports in the past.

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Fiber reactives in package dyeing

Franklin Process Co. pioneered the application of fiber reactive dyes to cotton yarn

Staff prepared Exclusive

NOT LONG after the fiber reactive dyes made their appearance, the Franklin Process Co., a division of Indian Head Mills, began making an exhaustive evaluation of these new colors, which are characterized by brilliancy and wet fastness properties. The main objective of this evaluation, which became a coordinated project between Franklin's technical and merchandising divisions, was to explore the end use possibilities of these colors on cotton yarn.

As bleachers and dyers of natural, man-made-fiber, and blended yarns, which find more than 35 end uses, Franklin Process Co. long ago established an application laboratory, whose most important function is to develop new techniques for dyeing yarns in the Franklin package machine. It was therefore in keeping with company policies to investigate fiber reactive colors as a new development of possible interest to the trade. Earlier this year, the application laboratory completed this work and the company announced a range of shades.

Under Franklin's organizational set-up, long range projects pass from the application laboratory to the plant laboratory, after exploratory work has shown the advisability of continuing with the work. The "bugs" in a new dyeing technique are worked out in the application laboratory, where study is also made of costs and the potential of end results. The dyeing formulations and routines are then perfected by the plant laboratory, which works closely with the plant departments.

This set-up releases the application laboratory for other projects as soon as the work reaches an advanced stage. Over a period of time, the number of projects which are carried out reach a staggering figure, since the application laboratory serves in a so-called research capacity for the company's four plants in Fingerville and Greenville, S. C., Chattanooga, Tenn., and in Philadelphia, where the laboratory is also located, operating independently of production activities.

Franklin Process Co.'s Edmund Eismann (l) and Warren Fish, head of the technical department, discuss a new technique for dyeing yarn. Franklin Process bleaches and dyes yarns of natural and man-made fibers and blends, for more than 35 end uses. They were the first to develop a range of fiber reactive shades on cotton yarn by package dyeing methods.

Steps in Evaluation of Fiber Reactives. In the first phase of evaluating the fiber reactive colors, the laboratory developed formulations and dyeing cycles to conform to the conditions of the Franklin machine, and to suit the dyeing properties of these dyes. Then, color and dyeing costs were computed to serve as a guide for future dyeings, which were carried out on a competitive basis with existing color classes.

Following extensive dyeings, tests were carried out on individual colors and shades for various fastness properties. Study of these tests and comparisons with other color classes indicated further dyeings until a representative range of shades was developed from the best of the available fiber reactives.

The problems which had to be overcome in developing a dyeing cycle centered around preparation of yarn; adjustment of salt concentration for exhaustion of dye, while making provisions for uniform diffusion of dye into yarn; adjustment of alkali concentration, which catalyzes reaction of dye with cellulose; and standardization of after-washing procedure for complete removal of unfixed dye, which is essential for best fastness properties. Since dyes of all three commercial types (Procions, Cibacrons, and Remazols) were used in many combinations, the formulations were adjusted to suit all three types.

The complete dyeing cycle is longer than that for vats, going somewhat beyond seven hours, although it is comparable in length to dyeing with naphthols. While the actual time of chemical reaction is short, taking place in a matter of minutes under catalysis of alkali, a lengthy after-washing to remove unfixed dye (product of reaction between dye and water) accounts for the extended dyeing cycle. The chemical reaction (between dye and cellulose) takes place readily with no accompanying color change.

The unfixed dye, which requires

time for removal and represents a loss in color yield, also accounts for a high proportion of dyeing costs. The percentage of unfixed dye rises as color concentration is increased, causing a drop in shade after washing which can reach as high as 40% in heavy dyeings. In light and medium shades the loss is substantially smaller, making dyeings in these concentrations more economical. This factor placed a restriction on dyeing concentration, and in the range of shades developed by Franklin Process Co., the concentrations as a rule did not exceed 3%.

In general, the fiber reactives are very level dyeing colors, being superior to vats in this respect; moreover, they penetrate well. This is of particular advantage in dyeing blue shades, which present some difficulties when vats are used. There is also an advantage if yarns are dyed for solid knitted shades, as a more uniform appearance is achieved. Mercerized yarns dye heavier than straight cotton yarns and produce more lustrous shades.

End Usage: Big Factor in Color Selection. Together with computation of costs and study of dyeing behavior of individual colors and shades, the laboratory carried out the following tests:

Light fastness

Wash fastness — to determine degree of staining of other fibers, and loss in depth of shade

Crock fastness

Perspiration

Chlorinated pool water.

Results of these tests served as important factors in the choice of colors and shades for Franklin's color card. For better perspective in discussing test results, and in appraising the fiber reactive colors in other respects, it might be interesting to list some of the principal end uses for cotton yarns and the various color classes which Franklin selects to best meet conditions of a particular end use. The end uses are as follows:

Knitted outerwear

Hosiery

Shirting and dressgoods

Tufted textiles

Narrow fabrics and webbing.

For these, where cotton yarns are used, colors from the following classes are selected:

Vats

Directs

Developed colors

Sulfurs

Naphthols.

For knitted outerwear, a fairly complete range of shades can be obtained with directs and developed colors. But certain shades, such as blues, are obtained with vats, and the brighter reds are obtained with naphthols. For a black, a sulfur color is generally used. Dependent on depth of shade, Fade-Ometer ratings of these colors range from 10-80 hours, while wash fastness at 120 F is satisfactory in all cases, and in many at 140 F.

Where end usage demands a higher degree of all-round fastness properties, as in colored shirting and dress goods, Franklin uses selected vats and naphthols. The vats, of course, can withstand both chlorine and peroxide bleaching; while the naphthols can withstand chlorine bleaching, and peroxide bleaching if it is carefully controlled. Colors for these end uses are specially selected since they must withstand subsequent scouring and finishing, and severe laundering during wear.

Vats also find wide application for cotton hosiery, which may have to withstand severe laundering, often in the presence of a chlorine bleach.

To summarize the foregoing, colors are selected from various color classes to meet requirements of end usage. Specially selected vats and naphthols can meet the most severe requirements, even to outlasting the life of the garment.

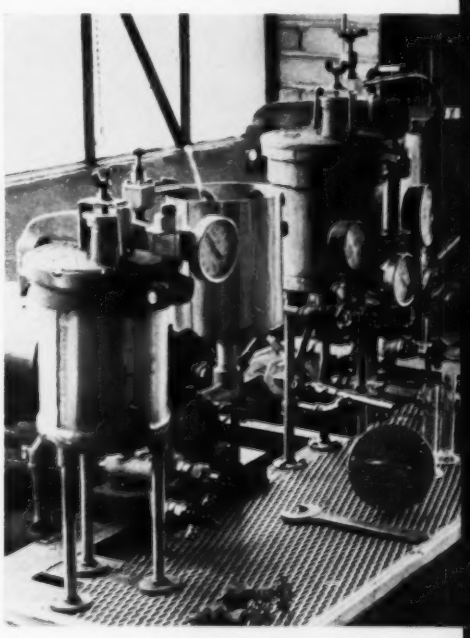
The fiber reactive colors and combinations of these which were selected for Franklin's color card are of light and medium concentrations, not exceeding 3%, as previously stated, because of cost. Their fastness to light in Fade-Ometer ranges from 20-80 hours, dependent on depth of shade. Nine

Fiber reactive dyes

Second in a Series

shades are fast to washing at 140 F; the remaining 31 shades can withstand washing at 160 F. The shades are not recommended as fast to chlorine bleaching, though some could stand this treatment. But as Franklin points out, concentrations of chlorine bleaching solutions vary in home laundering, not to mention that the bleaching itself can be severe, to make the outcome unpredictable in many cases.

Some Conclusions. Though the fiber reactives have the two properties of brilliance and wet fastness, these are not always enough to overcome the higher cost of dyeing at high concentrations. And in light and medium concentrations, the fiber reactives receive some rather stiff competition from other color classes. While it is true that each color class has general characteristics with respect to dyeing behavior and fastness properties, there are individual



One-pound package machines in the application laboratory at Franklin Process, where extensive dyeings were made with the fiber reactives under practical conditions. After dyeing cycles and formulations were developed, the project passed to the plant laboratory, where exact matches were developed before plant dyeing began.

Color Classes for Cotton Yarn

Type of Color[1]	Degree of Fastness to— Home Washing	Laundry	Light	Slasher Sizing	Bleaching (Chlorine)	Cross Dyeing	Mercerizing
1. Vat	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
2. Naphthol	Excellent	Excellent	Very Good	Excellent	Excellent[2]	Excellent	Excellent
3. Developed	Good	Fair to Poor	Poor	Excellent	Bad	Good	Good
4. Sulfur	Good	Fair to Poor	Good	Excellent	Bad	Good	Good
5. Basic	Poor	Very Poor	Very Poor	Require Extreme Care	Bad	Bad	Bad
6. Direct	Good in Light Shades Poor in Heavy Shades	Poor	Some Poor Some Very Good	Good in Light Shades Heavy Shades Require Care	Bad	Bad	Some Good

[1]The numbers on the left indicate the price class, No. 1 being the highest priced, No. 2 next, and so on.
[2]Not good to peroxide.
This generalized comparison of the various color classes used in package dyeing cotton yarns is taken from one of Franklin Process Co.'s brochures on dyeing. It refers to the relative fastness of the different colors as classes. It should be borne in mind that there are exceptions within each class. Although the fiber reactives offer brilliance and wet fastness properties, their greater expense at higher concentrations has restricted their wider adoption.

colors in each class with outstanding properties. Though such colors are not necessarily superior to fiber reactives, more often than not they offer the important advantage of lower cost.

Franklin Process Co. has found that fiber reactives meet with acceptance where brilliance is particularly desirable and the cost of the garment offsets the costs of dyeing, or where a particular property is of outstanding advantage aside from the cost of the garment. In swimwear, for example, the brilliance of the fiber reactives adds tremendously to appeal and the price of the garment is high enough to justify the added cost of dyeing.

An example of the latter occurred when a customer of Franklin Process required a deep shade of red for a knitted outerwear fabric with fastness to crocking, which is a shortcoming of naphthols. By switching to fiber reactive colors, this problem was overcome and the possibility of consumer complaints eliminated.

Costs of applying fiber reactives in package dyeing, in light and medium shades, fall between the costs of applying developed colors and vats. At high concentrations, however, the fiber reactives are higher in cost than the vats and naphthols.

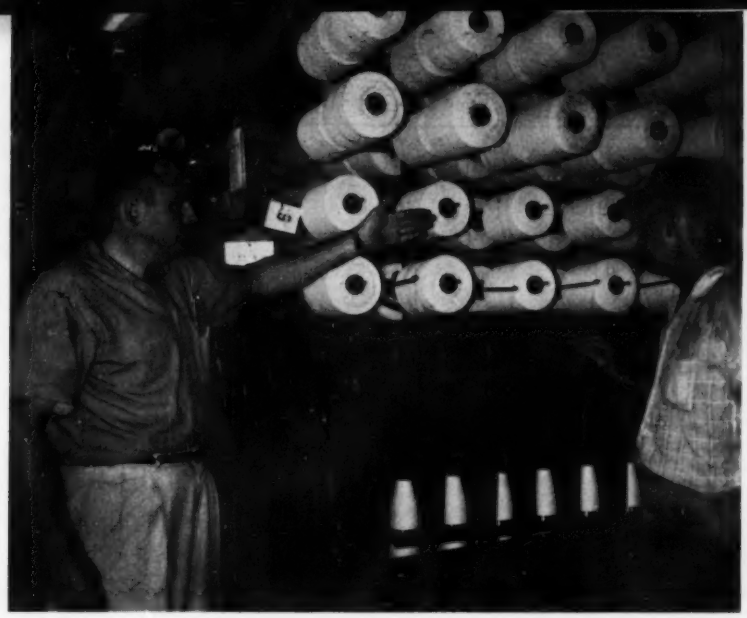
From the standpoints of brilliance and light and wash fastness, the fiber reactives are superior to developed colors. But there is an exception to this generalization: Brown shades dyed with developed colors are currently meeting requirements of cost and end usage. While similar shades of brown can be obtained with fiber reactives, they are not being considered in package dyeing because of their higher cost.

Only a few shades are actually brighter than the vats: turquoise and two heavy shades of blue. Moreover, most vats are faster to light than fiber reactives, having Fade-Ometer ratings of more than 20 hours in light shades. Although the sulfur colors are inexpensive, they are dull and not very satisfactory to light, giving the fiber reactives advantages except in the case of a black. Perhaps the outstanding advantage of fiber reactives over naphthols is in their fastness to crocking; but in brilliance the differences are slight.

Certain fiber reactive colors possess advantages over shades dyed with direct colors. But their higher price prevents further encroachment. For example, a shade of gray dyed with directs is comparable in light and wash fastness, and in brilliance, to fiber reactives. Thus, there is no reason to dye with fiber reactives in this case.

To summarize Franklin Process Co.'s experience with fiber reactive colors at the time of this writing, in the summer of this year, for certain end uses these colors have found a ready acceptance. But in general their extension has been restricted by some weaknesses in qualities, and by their higher cost at high concentrations, to uses where brilliance and wet fastness properties would be particularly attractive.

Evaluation of the fiber reactives still continues at the Franklin Process laboratories in the interest of providing the trade with best available colors, regardless of class. Dyeing formulations and cycles have long been developed to a practical degree, for Franklin Process Co. pioneered in developing this new class of colors in package dyeing.



The author, who is assistant general superintendent of Rocky Mount Mills, and Charlie Thompson, patrol operator, check creel of a twister running three-ply yarn.

How we cut twisting-winding seconds 65%

by Ben Trueblood
Rocky Mount Mills
Exclusive

NOT LONG AGO Rocky Mount Mills had a problem with excessive seconds from the twisting and the finishing (winding) department. A thorough investigation then brought forth a program that reduced seconds, and at present the program is still working satisfactorily. Results show a reduction of about 65 per cent in the amount of seconds produced in twisting and finishing winding operations.

For 13 weeks in 1957 seconds were 22,000 pounds; during the same 13 weeks of the following year (production in equivalent counts were equal) seconds were 7,000 pounds, or 15,000 pounds less.

Our twisters operate with Abbott tubes in the creel. Seconds are wound off on a Foster 102 winder.

Operative Mrs. Greeley Davis runs only four or five spindles as she rewinds or backwinds drop-ply yarn. Thus she can immediately spot end of drop ply, salvage more good yarn.

We had three twister tenders operating 24 twister frames—12 on 2-ply, and 12 on 3 - 9-ply. Excessive seconds showed up in our twisting operations, primarily from drop ply* on the 3-ply and above.

Instead of dividing the job equally among three men (as it had been) we gave two men

*Any drop in the required number of plies, caused by creel runout, breakage, etc.—The Editors.

Table 1. Seconds and Waste Analysis for Two 13-Week Periods

	April, May, and June, 1957 (13 weeks)	April, May, and June, 1958 (13 weeks)
Total seconds packed out	22,279	7,260
Average packed out per week	1,714	558
Total thread waste (twisting)	2,787	5,145
Average packed out per week	214	396

some of the cleaning duties of the other tenders and additional 2-ply frames as long as they were not overloaded. The third operator was assigned primarily to patrol duties, and his job is to patrol 3-ply twisters or above for singlings (or drop ply) so as to spot such before too much of this is run on the bobbins. The patrol operator pulls off the singlings found and puts them into thread waste.

All of the seconds made in the twisting department prior to the change went to finishing (or winding department) where the op-

Fabric for the world's largest airships made at Goodyear's Rockmart plant

■ THE PARTIALLY inflated airship envelope pictured above is only one of a number being assembled for the Navy's ZPG-3W airships in Litchfield Park, Arizona, by Goodyear Aircraft Corp. from rubberized fabric which was woven at the Rockmart (Ga.) Mill of The Goodyear Tire & Rubber Co. from yarns of natural and synthetic fibers.

While the announcement did not indicate exactly how much fabric is required to assemble the giant envelopes, some idea may be derived from the following description of the size: When inflated with helium, the envelopes stretch a block long and tower several stories high.

How such a large item is assembled and handled may prove interesting, especially since thousands of yards of textiles are involved.

Upon delivery of the neoprene-coated fabric to the envelope assembly area in the Arizona plant, it is unrolled and cut out according to patterns, much the same as suits and dresses are cut out by tailors. Refer to the accompanying photographs.

PHOTO 1—The pieces are placed on the floor and crews of women begin the long and exacting job of cementing seams and fitting the pattern together.

As the envelope nears completion, it is partially inflated with air (see large unnumbered photo above) and workers enter through a special opening to complete last minute operations of installing holders for the radar antennas and other internal equipment. Then comes a final inspection when every sq in. of fabric is inspected for flaws. By standing in a total darkness and looking outward, an inspector can see even the tiniest pinhole.

PHOTO 2—Folding the giant envelope is a major operation. Workers standing shoulder to shoulder for more than 360 feet grasp the fabric and pull in unison, until the material

erator wound off seconds on packages to be sold as such.

In winding off drop-plies, some good yarn was also wound off as seconds because the operator was unable to see where the drop-plies ended on the package.

The operator in the finishing department who now winds off seconds under the new method runs a smaller number of spindles.

The number of spindles she ran on seconds was cut to four or five so she can observe them more closely to prevent wasting good yarn. She also uses a form in classifying seconds.

We found that thread waste was slightly increased in the twister room using the patrol system. But seconds were reduced by the patrol system and by added care in winding off drop ply.

In trying to evaluate progress in seconds reduction, 13 weeks covering April, May, and June of 1958 were compared with the same 13 weeks of 1957, average counts and plies being about the same. The thread waste over the same period of time was compared, and though there was an increase in the amount of this type of waste, the savings in seconds easily compensated for this cost.

Total seconds for the 13-week period in 1958 resulted in a difference of 15,019 lb less or 1,156 lb per week. The thread waste showed a difference of 2,358 lb more total or a gain of 181 lbs per week.

The close attention and diligent effort given by Wade Hall, twister department overseer, and Linwood Massengale, finishing department overseer, are the keys to the program's effectiveness.

is in a neat folded strip stretching its full length, but only about 12 feet wide.

PHOTO 3—Wrapped in a protective covering of lightweight cotton cloth, the long, narrow envelope is slung on spreaders and fed into a shipping box the length and width of a flat car.

PHOTO 4—The boxed envelope is placed onto a railroad flatcar for shipment to Goodyear Aircraft's plant in Akron, Ohio, where final assembly of car, electronic gear, and envelope is completed.

Here's a quicker but effective way to break-in spinning rings

by P. F. Grishin
Research Consultant
Whitin Machine Works

Extract*

■ A SHORT but most effective breaking-in schedule which we recommend for rings preserved in oil is as follows:

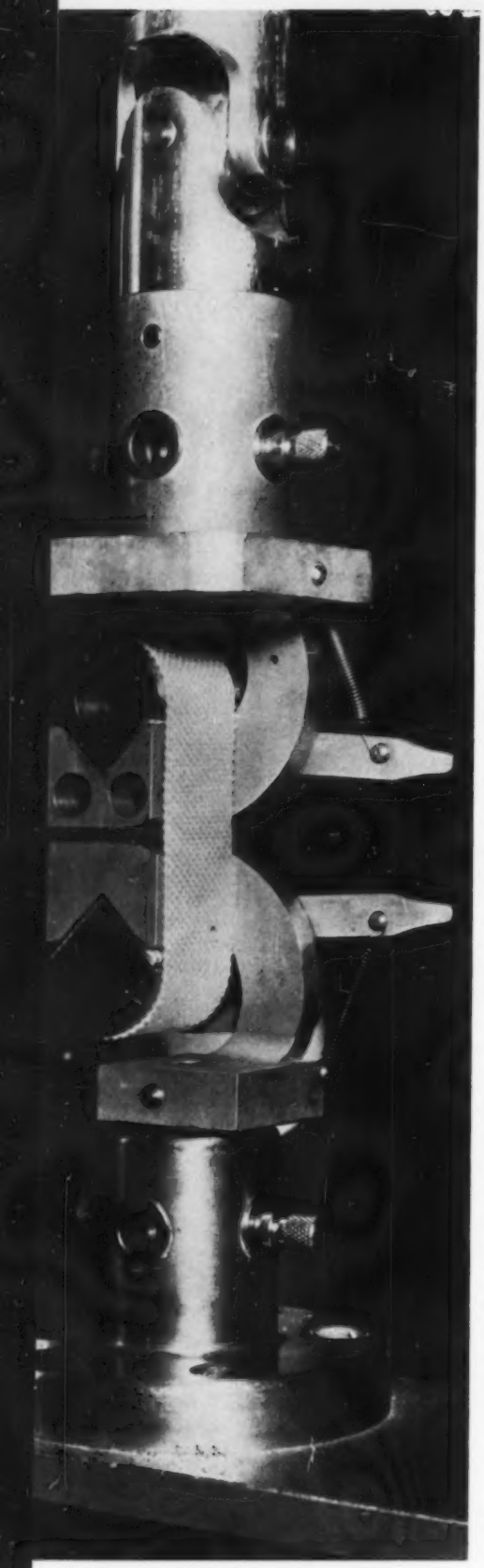
1. Wipe rings thoroughly, put on travelers. Run 3 to 5 minutes.
2. Wipe rings, change travelers, run 10 minutes.
3. Wipe rings, change travelers, run 10 minutes.
4. Change travelers, run 10 minutes.
5. Change travelers. Run one doff. Check up traveler burn (B%).
6. Change travelers.
   (a) Run four doffs if B in No. 5 is less than 7 per cent, or
   (b) Run three doffs if B in No. 5 is less than 10 per cent, or
   (c) Run two doffs if B in No. 5 is less than 15 per cent, or
   (d) Run one doff if B in No. 5 is equal or over 15 per cent.
7. Repeat No. 6 until B is less than 15 per cent, then double the number of doffs in steps, checking every time the traveler burns until the traveler life is 120 hours. Never increase the traveler life if the number of burned travelers is equal or over 15 per cent.

If after the first two 10-minute traveler changes the number of burned travelers is less than 2 per cent, 120 hours of traveler life may be adopted right after the two changes.

Tips for Breaking-In Rings. We offer the following practical suggestions:

1. Use only yarn or roving waste for wiping the rings. Be sure to clean carefully the inner side of the flange, including its bottom.
2. Be sure that your traveler burn is not caused by travelers loading with fly. The simplest rule for the traveler clearer is that it should be set from a new running traveler at a distance no greater than the thickness of this traveler.
3. The elliptic traveler burns less than the regular one. The smaller the circle and opening used for the traveler, the less the latter will burn. Thus, use No. 1 flange ring for the counts above 12-14s, rather than flange No. 2.
4. Wider travelers burn less than narrow, thicker ones. Use wider wire in all cases where the yarn is not low twist.
5. Be sure that the determination of the average traveler burn is made on not less than 200 travelers altogether.
6. Ring breaking-in procedure preferably should be made with the same speed and traveler intended for use in normal running.
7. Be sure that the start of a new traveler is made as smoothly as possible. Nothing promotes new traveler burning as much as excessive acceleration while starting the frame.
8. If the first full doff time shows too many burned travelers, do not lose hope at once. If the speed is not excessive, this would only mean that the ring is poorly finished and needs more careful breaking-in. Try then to wipe the ring once again if a suspicion exists that the ring is or has become dirty. Reoiling may also be tried in severe cases of spoiled rings.
9. Every wipe of the ring removes, together with harmful deposits, the valuable natural lubricant — wax flowing continuously from the yarn onto the traveler. Thus, a wipe may increase the traveler burn and should be, therefore, accompanied by a traveler change made in a time from 10 to 30 minutes after the wiping.
10. If all the precautions are in vain, and the traveler burn persists to stay 15 per cent or over in a single doff time, drop the spindle speed or change the traveler type.
11. Never break-in the rings with nickel plated travelers, but they may be used on broken-in rings.

*From the fifth and last part of the article entitled "Fundamentals of Spinning Ring Development" which appeared in the September, 1959, issue of the *Whitin Review*.



Get better breaks for

by H. A. Mereness
Institute of Textile Technology

Exclusive

THE BREAKING of heavy fabrics in tensile strength testers has always afforded difficulties. This is because the gripping surfaces of the customary type of clamps are of smooth metal and have flat parallel surfaces; consequently, when sufficient pressure is put on the specimen to hold it in the jaws, the compression forces the material from the jaws, or cuts the specimen at the edge of the jaws, in either case causing "jaw breaks."

In recent years the problem has been aggravated by the production of very strong and smooth rayon and nylon fabrics. Many fabrics breaking at not more than 400 pounds to the raveled inch can not be held in smooth flat metal jaws without considerable slippage within the jaws.

Fabric tensile strength is determined using either a one-inch raveled strip as a specimen, or a four-inch-wide strip of fabric is grabbed by one inch of the jaws and thus becomes what is known a a "one-inch grab test."

Obviously, the grab test gives greater registered strengths than the raveled strip test, due to the assistance of the "side yarns," i. e., those yarns not included within the one-inch-wide area between the clamps, but still acted upon by the clamps. The difference between the tensile strengths obtained by the raveled strip and grab methods is not a constant, percentage-wise, but varies from fabric to fabric, because of differences in fabric construction.

Both methods of test, raveled strip and grab, are standard with the American Society for Testing Materials (1)*. The raveled strip method is preferred for experimental work because of the smaller variations between replicate tests, while the grab type of test is preferred by many as being a more rapid test to make and as representing more nearly the resistance to break of an area of fabric when made into a garment or used as an industrial product.

The Difficulties. The difficulties connected with performing the raveled strip test on heavy and smooth fabrics are as follows:

First, compared with the grab method, much more time is consumed in having to ravel the specimen to exactly one inch in width.

Second, when breaking heavy fabrics made from large yarns, as stress is applied to the specimen side yarns begin to slip out of the structure with the result that at the time of break many yarns (sometimes nearly 50 per cent) are not broken at all and the real strength of the one-inch strip is not obtained.

Third, the heavy compression necessary to hold the specimens in the jaws produces "jaw breaks," which further reduce the registered strength.

Fourth, if the fabric is strong enough and smooth enough no amount of pressure will hold the specimen in the clamps.

The difficulties connected with the grab test are somewhat the same as for the raveled strip test, but are different in importance. Since the grab test gives the higher strengths, pressure in the clamps, cutting at the edge of the jaws, and fabric slippage within the jaws are intensified. However, since there are fringes of 1½ inch on either side of the central one-inch-wide area being gripped, the side yarn raveling, mentioned in connection with the raveled strip method, does not take place.

Figure 1. Raveled strip test using the capstan fabric clamps developed at I.T.T.

*Numbers in parentheses are references at the end of this article.

smooth, heavy fabrics

Solution to the Difficulties. Solutions to each of the difficulties enumerated have been proposed from time to time. Some of the more important of these will next be discussed.

To prevent slippage of the fabric within the clamps two general methods have been used: First, the jaws have been padded with canvas, rubber, or other gripping material; second, the specimens have been coated with rubber cement or other adhesive where held in the jaws. The latter method has the advantage of protecting the yarns from edge cutting in the jaws, since the cement can be extended out just beyond the nip of the jaws.

The principal problem connected with these techniques is that of the standardization of procedures. How are different operators to know how to cement the specimens always in exactly the manner described in written instructions? With padded jaws, how is a standard padding to be obtained, and, if made available, how is it to be applied to the jaws in a standard manner? How often should the padding be renewed?

Recently, a task force of Committee D-13 of the American Society for Testing Materials developed a modification of the standard raveled strip and grab methods. This method, called the "Modified Grab Method," gets around the difficulty caused by "popped-out" yarns common to the raveled strip method, but still retains some features of that test (2).

By using a four-inch-wide strip of fabric and cutting in from both sides until a one-inch width is left midway between the two clamps, the raveling of the side yarns, obtained in the conventional raveled strip method, is prevented. However, there still remains the problem of preventing slippage from the clamps. It has been largely overcome in this method by the use of padded jaws, which are not subject to standardization.

In connection with the "Modified Grab Method" it has been advocated that each end of the specimen be carried through the clamp, wrapped around a wooden or metal dowel pin, and the free end passed back through the clamp. This is an effective technique in preventing slippage of material from the clamps, but also offers difficulties in standardization.

This method could as logically be called a "Modified Raveled Strip Test," since the effective one-inch width of the test specimen obtains but little "assist" from the yarns in the fringes.

From these considerations it may be seen that, while modifications of the standard methods have offered means of obtaining usable results in specific cases, none of the above methods is susceptible of complete standardization.

A New Standard Method. It was with the thought of producing a standard method for heavy fabrics that the writer designed (3) a set of clamps which may be used for both raveled strip and grab methods, and which do not depend upon padding to prevent slippage of the fabric within the jaws.

The jaws are a special form of what is known as "capstan jaws." In this type of clamp the greater the stress applied to the specimen the tighter the specimen is held in the clamps. Therefore, there is practically no slippage within the jaws.

Also, because of a certain amount of friction between the specimen and the curved portion of the jaw, there are no jaw breaks when using the raveled strip method and only a small number when using the grab method.

Extensive raveled strip testing with this type of capstan clamp indicates that it gives tensile strengths about 10 per cent greater

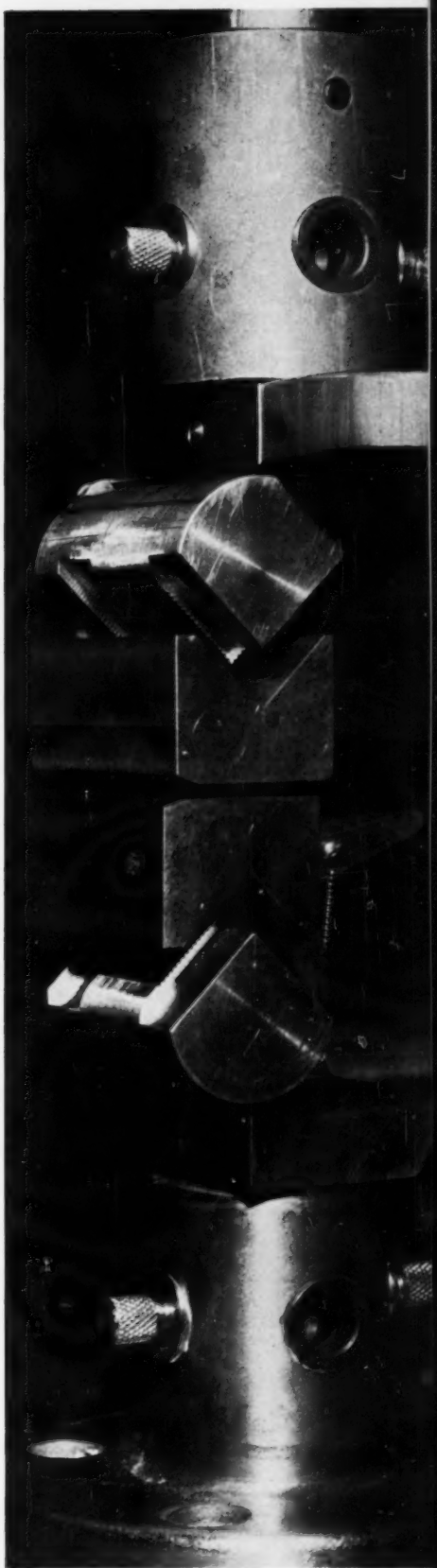


Figure 2. Capstan fabric clamps developed at I.T.T. for the grab test.

TABLE 1. Raveled Strip Breaking Strength and Elongation to Break of Heavy Fabrics—Instron Flat Clamps and I.T.T. Capstan Clamps*

Fabric Sample	Breaking Load		Elongation to Break	
	Flat Clamps lb	Capstan Clamps lb	Flat Clamps %	Capstan Clamps %
1. Nylon twill	189**	235	23.3	25.4
2. Cotton twill	195	214	13.3	16.8
3. Rayon, blue gabardine	100	118	7.7	11.7
4. Rayon and nylon, black gabardine	123	145	13.3	16.9
5. Light cotton duck, 7.4 oz	104	101	18.3	17.6
6. Heavy cotton duck, 29 oz	308	300	36.6	33.5
7. Wool, blue, 11 oz	96	97	40.0	44.4
Average	159	173	21.8	23.8

*Tested on the Instron tester. Operating conditions: cross-head speed, 5 inches per minute; gauge length, flat clamps, 3 inches; gauge length, capstan clamps, 3¾ inches; raveled strip, warp direction, 1 inch wide.
**Jaws would not hold specimen unless padding was used.

TABLE 2. Grab Method Breaking Strength and Elongation to Break of Heavy Fabrics—Instron Flat Clamps and I.T.T. Capstan Clamps*

Fabric Sample	Breaking Load		Elongation to Break	
	Flat Clamps lb	Capstan Clamps lb	Flat Clamps %	Capstan Clamps %
Warp Strengths				
1. Cotton duck, Sample 11	360	372	38.3	34.4
2. Cotton duck, mercerized	203	244	38.3	37.4
3. Cotton duck, mercerized	313**	408	34.9	36.5
4. Cotton duck, mercerized	310**	392	35.2	35.8
5. Spun viscose	808**	907	25.2	31.6
6. Viscose, garbardine	190	193***	12.0	18.0
Average	364	419	30.6	32.3
Filling Strengths				
1. Cotton duck, Sample 11	321	348	8.5	11.6
2. Cotton duck, mercerized	108	145	16.7	16.8
3. Cotton duck, mercerized	341**	363	9.7	11.1
4. Cotton duck, mercerized	332**	383	9.3	12.1
5. Spun viscose	573**	596	13.8	18.1
6. Viscose, gabardine	79	97	13.3	16.8
Average	292	322	11.9	14.4

*Tested on the Instron tester. Operating conditions: cross-head speeds—2 inches per minute with flat clamps, 5 inches per minute with capstan clamps; specimens 4 inches wide for flat clamps, 2 inches wide for capstan clamps; gauge length 3 inches for flat clamps, 7¾ inches for capstan clamps.
**Jaws would not hold specimen unless padding was used.
***All breaks within jaws.

than those obtained with the regular flat jaws* and the 3-inch gauge length, and about a 2 per cent greater actual elongation. Nylon, cotton, viscose rayon, acetate, and woolen fabrics have been tested. The results obtained from seven typical heavy fabrics are given in *Table 1*.

The results obtained from testing heavy cotton ducks using the grab-type clamp assembly indicates an increased tensile strength of around 10 per cent and an increase in actual elongation to break of 2 per cent as compared with results obtained using the regular grab flat jaws, *Table 2*.

The new type capstan clamps have lightness in weight as an added feature, and require so little physical effort in use that female technicians have no difficulty in testing the heaviest fabrics.

A photograph of a set of clamps built for use on the Instron tester for breaking fabrics up to 1000 pounds tensile strength per inch is shown in *Figure 1*. The clamps may be adapted for use on any heavy-duty type of tensile strength tester.

Both the grab and raveled strip type tests may be performed on the same set of clamps by removing two screws and substituting the grab wedge for the raveled strip wedge, or vice versa, *Figure 2*.

The raveled strip specimen required is 11¾ inches long by 2 inches wide.

With the upper and lower clamps as close together as is convenient (about ¼ inch apart) the total gauge length will be 7¾ inches, a large part of which is around the curved section of the two jaws. However, in spite of this relatively long gauge length, the tensile strengths obtained are, as noted, somewhat higher than those obtained with the conventional flat jaws and the 3-inch gauge length.

Since the capstan grab clamps using the 2-inch-wide strip normally give greater breaking strengths than the regular A.S.T.M. grab method using a 4-inch strip and flat jaws, there seems no good reason for using cut strips wider than 2 inches. The 2-inch-wide strips are trimmed to a raveled edge, which assures getting the same yarns gripped in each clamp without the necessity for marking the fabric.

As an added feature, the I.T.T. capstan-type clamp has been found quite suitable for breaking heavy cords and yarns.

*The clamps used for these tests were the regular Instron clamps furnished for use with the D-cell.

References

1. American Society for Testing Materials, ASTM Designation D 39-49, "Testing Woven Fabrics," in "ASTM Standards on Textile Materials," pp 1-7. Philadelphia: ASTM, 1958.
2. American Society for Testing Materials, Subcommittee B-9, Committee D-13.
3. Mereness, H. A., and Fornes, G. G., U. S. Patent 2,850,895, "Gripping Means for Fabric Test Specimens," Sept. 9, 1958.

Carding discussion leader Case

More mill dope on sandpaper carding

Alabama mill men gave their experience with the now commercially available granular tops for cards. Split-top and short-cut flats, flat speeds, needle-point and hardened-point wire were also discussed.

Staff report

A LARGE NUMBER of Alabama Textile Operating Executives met in Langdon Hall on the API campus at Auburn on October 10 to exchange views on mutual carding and spinning problems.

Burton Case, Huntsville Mfg. Co., led the carding discussion; W. *A. (Bill) Edwards,* Avondale Mills, led that on spinning.

Please discuss your experiences with any and all of the following:

a. Flats or flat clothing other than conventional such as "short cut," "split wire," etc.

b. Granular top card or flats modified by applying adhesive to present flats

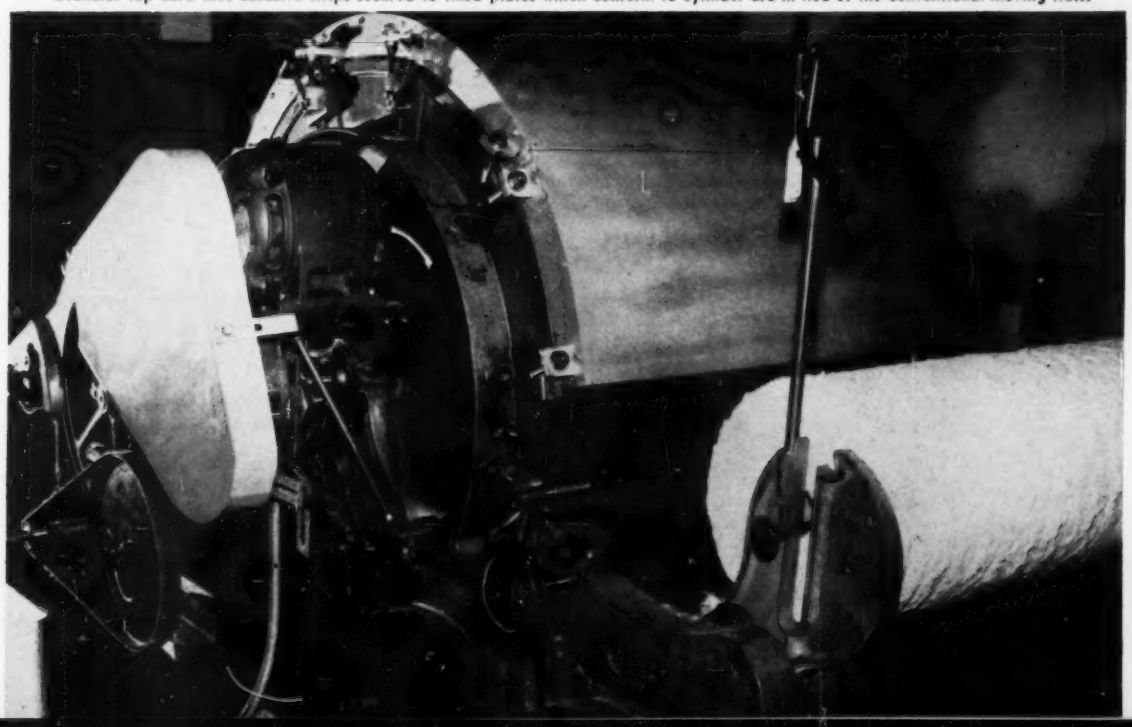
c. Reduced flat speed on conventional flats

d. Needle point and hardened point clothing

e. Metallic clothing

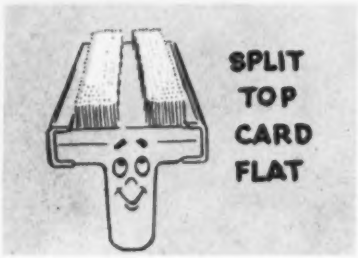
In giving your experience on

Granular top card uses abrasive strips secured to fixed plates which conform to cylinder arc in lieu of the conventional moving flats.



these, please include pertinent data as listed below:

a. Grade and staple of cotton used
b. Weight, sliver, and production
c. Stripping and grinding cycle
d. Wire size and average life of clothing
e. Effect on sliver quality, neps, card waste, shedding, card loading, yarn quality, and any other advantages or disadvantages



"Unconventional" Flat Clothing. To part A of the question no replies were received from two of the 15 reporting mills; nine had no experience; the reports from the remaining five are not readily summarized, so:

Mill F runs three cards equipped with split flats; uses four mixes from Middling 1" to a waste mix of strips and SGO. Card sliver is 70 grains; production is 9.75 pounds per hour; cards are stripped every two hours and forty minutes and ground every 300 hours; clothing is 110s wire. The flats have improved sliver quality, reduced the nep count, improved yarn quality, and have prevented card loading.

Mill I has one card equipped with short-cut flats that have been in use approximately four months without grinding, while the doffer and cylinder have been ground on the regular 13-day cycle. Tests indicate a possible advantage in neps, evenness, and flat strips. Most significant advantages appear to be the reduction in flat strips and grinding cycle.

Mill K has 10 cards that were fitted with split flats a short time ago and refrains from evaluating them at this early date. The nep count appears lower and the web smoother than formerly, however.

Mill L has several sets of split-wire flats, runs them on 1" BSL cotton, produces a 57-grain sliver at 8 3/4 and 12 pounds per hour, grinds every 360 hours, and reports that they have a reduced nep count. No other items are affected.

Granular Top Cards. A couple of plants, *Mill B* among them, gave reports on part B. Granular top cards (fillet clothing) at this plant operated on 1" LM cotton, produced 57-grain sliver at 13 lb per hour, were stripped every two hours, ground every 10 days. On metallic clothing (granular tops), stripping is done weekly, and grinding is not done. The plant uses 100s wire on the cylinder, 110s on the doffer, enjoys approximately 15 years in card clothing life (fillet). The sliver quality from the granular top card appeared as good as that from conventional fillet or metallic clothing with regular flats. There was no appreciable difference in nep counts, loading, sliver variation, yarn strength, yarn variation or appearance. Cotton delivered in can was 96.4 per cent against 94.9 per cent on metallic card with top flats. Data in Table 1 are offered to render comparisons less difficult.

The representative of a companion plant of *Mill B*, gave the test results reflected in Tables 2, 3, 4, 5, and 6, based on his study of the granular top card. One of the things he pointed out was that the abrasive used in lieu of flats seemed to wear out after three or four months usage and cause a drop in performance, although the wear was not apparent. Tests were discontinued with granular top and flexible clothing, and the unit was shipped to a plant where it was to be checked in use with metallic clothing.

The settings used with the granular top were as follows (set-

TABLE 1

	Metallic clothing on cylinder and doffer—1¾" per minute flat speed	Metallic clothing on cylinder and doffer—0.4" per minute flat speed	Granular top card with metallic clothing on cylinder and doffer
Card sliver variation (%)	2.15	2.16	2.15
Breaker drawing sliver variation (%)	3.90	3.72	3.81
Roving variation (%)	7.3	7.2	7.3
Spinning (warp) variation (%)	15.8	16.4	16.2
Neps (per 100 sq in)	21	20	23
Yarn weight	20.21	20.18	20.01
Break (skein)	92	94	94
Break factor	1859	1897	1881

TABLE 2

Sliver and Roving Quality—Standard Card vs. Granular Top Card (8/25/58)

	Card sliver neps per 100 sq in.	Card sliver uniformity (Uster) avg value	Finish drawing uniformity (Uster) avg value	Roving uniformity (Uster) avg value	Average hank roving
Card					
Standard	10.3	2.9%	3.8%	7.5%	2.03
Granular top	9.2	2.8%	4.0%	7.5%	1.98

TABLE 3

Yarn Characteristics (30s/1 carded)—Regular vs. Granular Top Card

	Skein Strength	Single strand strength	Average count	Strength constant	Elongation	Uniformity (Uster) Avg value	Yarn appearance grade
Card							
Standard	68 lb	0.51 lb	30.3	2060	6.3 %	15.9%	B plus
Granular	67 lb	0.48 lb	31.6	2117	5.5 %	15.4%	B minus

NOTE: Nep counts were made for an average of four times per day for a period of 14 days. The counts were taken across the web in three different sections. Yarn tests were made directly from cone. Number of tests—skein break and weight, 10; single end, 150.

TABLE 4

Performance of Standard Card vs. Granular Top Card (9/17/58)

	Card sliver neps per 100 sq. in.	Card sliver uniformity (Uster) avg value	Finish drawing uniformity (Uster) avg value	Roving uniformity (Uster) avg value	Average hank roving
Card type					
Standard	10.3	2.9%	3.8%	7.5%	2.03
Granular	9.2	2.8%	4.0%	7.5%	1.98

TABLE 5

Yarn Characteristics (30s carded) Regular vs. Granular Top Card

	Skein strength	Single strand strength	Yarn count (avg)	Strength constant	Elongation	Uniformity (Uster) avg value	Yarn appearance grade
Card type							
Standard	68 lb	0.51 lb	30.3	2060	6.3%	15.9%	B plus
Granular	67 lb	0.48 lb	31.6	2117	5.5%	15.4%	B minus
Granular*	62 lb	0.56 lb	29.9	1854	6.5%	15.3%	B minus

*Licker-in speed on granular top card upped from 550 to 800 rpm

NOTE: Nep counts were made for an average of four times per day for a period of 14 days. The counts were taken across the web in three different sections.
Yarn tests were made directly from cone. Number of tests—skein break and weight, 10; single end, 150.

TABLE 6

Breakdown of Waste—Granular Top Card with 800-rpm Licker-in Speed vs. Regular Card

(All figures in pounds)

	Total cotton fed	Stock delivered	Front waste	Cylinder and doffer strips	Motes	Fly	Scavenger	Flat strips	Invisible loss
Regular card	49.50	46.50	0.31	0.41	0.30	0.09	0.01	1.22	0.66
Granular top card	50.25	49.12	0.27	0.29	0.26	0.32			
Regular card	100	93.93	0.67	0.88	0.65	0.19	0.02	2.62	1.04
Granular top card	100	97.98	0.53	0.57	0.52	0.63			

Neps per 100 sq in.—Regular card 11.4; Granular top card 12.4

tings in thousands of an inch unless otherwise indicated):

Top guide	39
Lower edge of back plate	15
Upper edge of back plate	15
Lower edge of front knife plate	22
Doffer to cylinder	7
Doffer comb to doffer	17
Cylinder screen front to cylinder	3/16
Cylinder screen middle to cylinder	68
Cylinder screen back to cylinder	29
Feed plate to licker-in	10
Licker-in to cylinder	7
Licker-in screen front	10
Base	15
Toe	3/16″
Mote knife, top	15
Mote knife, bottom	15
Upper end of front knife plate	22
Granular top to cylinder	10

Flat Speeds. On the issue of flat speeds, exactly one-third of the plants had experiences to report. Of those, one plant, *Mill F*, reported an increase in nep count brought on by flats loading. One, *Mill C*, reported that knitting customers complained of an increase in fly on their knitting machines and a similar complaint from knitting customers who rewound their yarn before knitting it—too much lint on winders. *Mill C* noticed an increase in fly on its own winders, —operates on 1 1/16″ SM cotton, produces 57-grain sliver at 9 pounds per hour, grinds every 11 days, and strips every four hours.

Mill A could not notice any change except in a reduction of flat strips—operates on 1⅛″ SM cotton, produces 59-grain sliver at 7 pounds per hour, strips conventional clothing every 2.5 hours, grinds every 12 days, and uses 110s cylinder wire, 120s flats wire, and 120s doffer wire.

Mill D—1″ SGO cotton, 65-grain sliver, 14 pounds-per-hour production, 8-hour vacuum stripping schedule, 160-hour grinding schedule, 110s wire—noticed no significant change in sliver quality, no noticeable effects on yarn quality, but reported a one-per-cent drop in flat strips (*Mill A* experienced a similar drop and noticed an increase in short fiber and a decrease in the long fiber retained by the flats) and that their continuous strippers did not load.

Needle-Point and Hardened. Wire. Four mills reported experiences with needle-point and/or hardened-point wire. *Mill C* has been running two cards equipped with hardened wire for approximately six months. One has received one grinding; the other, none. Sliver variation is reported "good," there are fewer neps, no shedding or loading, and a drop in card waste—cylinder wire, 100s; doffer, 110s.

At *Mill F* there are 18 cards equipped with hardened-point wire. These units offer "better quality sliver, fewer neps (card stays sharp longer), and less downtime for grinding."

Mill I has conducted extensive tests in evaluating tentatively the merits of needle-point wire. The firm set up a doffer and a cylinder equipped with Micr-O-Grind needle point clothing; set up one cylinder and one doffer with regular clothing and ground it with Micr-O-Grind head; and set up one card with doffer and cylinder clothed with conventional fillet and ground in the conventional way.

This latter clothing was ground every 13 days as usual; the needle-point clothing was not ground during a 2.5-month test period. During that time nep counts on the three cards disclosed that the needle-point wire was superior in that respect. It did not matter if the wire were purchased with needle-point or ground that way from regular clothing. The firm believes that the Micr-O-Grind clothing will need grinding in a cycle somewhat greater than the 60 days the regular clothing ground with the Micr-O-Grind head apparently will require. This firm uses 1 3/32″ SLM bright cotton, produces 52.5-grain sliver at 7.25 pounds per hour, strips every two hours and forty minutes, grinds every 13 days, uses 120s wire on doffers and 110s wire on the cylinders.

Mill K replied: "We have 11 cards with hardened-point wire on cylinder and doffer. Nine of these were just installed, the other two have been in operation since November, 1958, and our experience with these has been that once you get them in good condition from a grinding standpoint, they will perform satisfactorily for 90 days or more without further grinding. The stripping cycle on these cards has been cut from once every two hours to once every eight hours. This firm uses 15/16″ to 1″ M and below cotton, produces 70-grain sliver at 10 pounds per hour, strips every eight hours, grinds every 90 days, uses 100s wire on cylinders, 110s on doffers.

Metallic Clothing. Metallic clothing is not in general use, as replies to that part of the question (e) indicate, and those plants now using it are unable to assess its average life—*Mill L* has 245 cards equipped with metallic clothing, 33 of which are operating with clothing from 25 to 30 years old. Seventy-eight have clothing from 20 to 25 years old. Recent experiments suggest to this firm that finer wire on doffer and cylinder would be "better" but that its anticipated life would be shorter.

The schedule of benefits offered by metallic clothing reads very much alike from plant to plant as do the disadvantages. By and large the clothing improves sliver quality, lowers nep count, reduces waste, improves yarn appearance, and lowers variation in both sliver and yarn.

The disadvantages largely amount to an increase in dust and fly, more chokes on screens and at selvages [see TI for June, 1959, p. 85, for a thorough discussion of these points given by Canton (Ga.) Cotton Mills], and maintenance (repair) difficulties when clothing is damaged.

Its use completely eliminates vacuum stripping, and (in a couple of cases reported) grinding is limited to "touching up" operations. The wire neither sheds nor loads.

Mill F strips every 24 hours and grinds cards on waste mix as needed—average once per year. Some of the cards on "cotton" have not been ground in three years. Wire sizes range from seven per running inch to 12 on doffers and 14 to 20

on the cylinders. Sliver quality on the waste mix is above that of conventional clothing and slightly lower than that of cotton processed on coarse wire—sliver quality is equal to that of cotton processed on finer wire. See Table 7 for this mill's summary of wastes from metallic and conventional clothings.

(Look for the spinning discussion to follow next month.—The Editors)

TABLE 7

Summary of Card Wastes at Mill F

Waste classification	Cotton mix		Waste mix	
	Metallic clothing	Conventional clothing	Metallic clothing	Conventional clothing
Flat strips (%)	1.13	2.98	1.55	3.26
Cylinder strips (%)	0.06	0.75	0.12	0.75
Card fly (%)	1.05	1.99	1.74	2.51
Total (%)	2.24	5.72	3.41	6.52

Recent developments *(from page 63)*

ronized." Details of licensing agreement may be obtained by contacting the CSIRO Division of the Textile Industry, P. O. Box 21, Belmont, Geelong, Victoria, Australia. No manufacturers have been licensed to use this trademark as yet.

Disperse Dyes for Polyesters. Sandoz, Inc., offers a new line of "Foron Ultra-Dispersed" dyes said to be particularly satisfactory for application to polyester fibers. Extremely fine particle size yields improved fastness to light. sublimation, wet treatment, fast fading, perspiration, and crocking. Dyes are also claimed to resist filtering out in package dyeing. Present range of seven colors will be expanded with six additional colors by the end of the year.

New Flameproof Finish. Cheaper and more effective flameproof finish to be introduced by Proban Ltd. New technique utilizes cold application in place of original hot method, allowing greater margin for error.

Washable Drapery Fabric. Warwick Chemical Div. of Sun Chemical Corp. and Industrial Rayon Corp. cooperate in development of a new washable, wrinkle-resistant rayon fabric ("300 WH") for use in making draperies. Claim superior dimensional stability, maximum lightfastness, and permanent set.

Moisture Proofing Process. Firestone Tire & Rubber Co. acquires new process for moisture-proofing natural and man-made fibers. Fibers are said to be treated before impregnation with various resins by use of special equipment. Expect this new process will be useful for building-in resistance to moisture in paper wrappings and similar items.

Unifog Spray Process. New Du Pont technique is claimed to be more effective than the customary padder for uniform deposition of textile processing agents to one or both sides of a fabric in continuous operation. Cloth is passed between a series of "misters" and special effects can be obtained by applying a softening agent to the face and firming agent to the reverse side of a fabric. Less drying heat involved makes use of radiant heat dryers more attractive.

Improving Vat Dyeing. Recently assigned a U. S. patent is a new process for the application of aqueous vat dyes without a reducing agent. Colors are said to be sharper and more intense than those that can be obtained economically by other textile printing methods. The vat dye pastes are incorporated in a water-in-oil emulsion that allows printing without immediate development. It is also possible to use faster printing speeds than are usually attained with conventional vat dye printing methods.

Improved Belfast Finish. Deering-Milliken Research Corp. announces a new process to build maximum dry crease recovery into Belfast self-ironing fabrics. Process involves basic molecular modification of the cotton fiber, plus limited use of resins. Claim fabrics so treated are "as superior to present-day Belfast fabrics as the original Belfast fabrics were to drip-dry fabrics."

MACHINERY AND PROCESSES

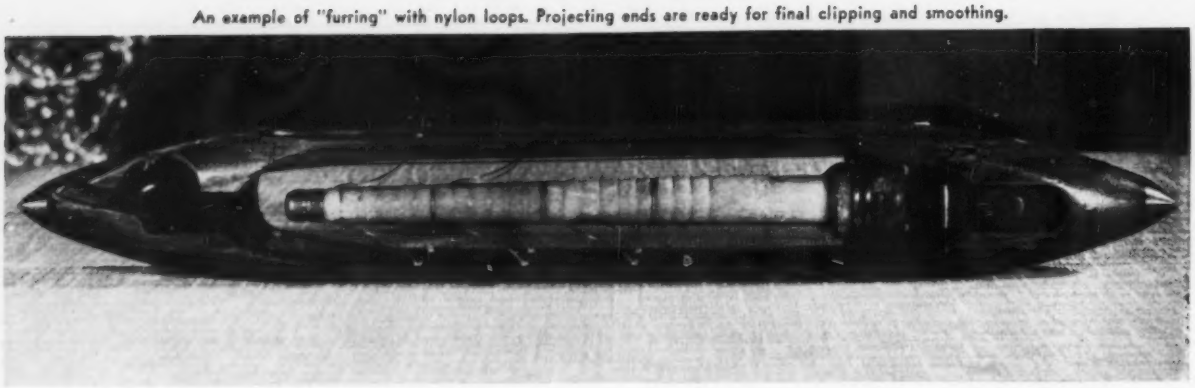
Automatic Loom Battery Filling. Automatic bobbin loader made by G. Fischer Ltd. is equipped with pirn-changing device and container which is at least eight times larger than that of conventional vertical and circular machines. Weft pirns are transferred from the containers into the shuttle without any battery filling.

High-Speed Stretch Yarn Unit. Leesona Corp. is reported to be developing a 200,000 rpm stretch yarn unit.

Weaving from Stationary Cone Supply. Spanish Telar shuttleless loom has a picking stick with a gripper on the end which collects filling from a stationary package on the left side of the loom and takes it gently through the warp shed without subjecting the yarn to any overtension. Several cones may be assembled in the battery to give a limitless supply of filling. Simple devices form the selvage after the filling has been inserted.

Shear for Shuttleless-Loom Fabrics. Parks & Woolson Division of Riggs & Lombard, Inc., is reported to have under development a special shear for trimming the unfinished lefthand selvage of fabrics woven on Draper's shuttleless loom. The loose selvage ends are said to be held for shearing by a suction device.

An example of "furring" with nylon loops. Projecting ends are ready for final clipping and smoothing.



HOW TO "FUR" SHUTTLES WITH NYLON

was a highlight of the weaving discussion held recently by Textile Operating Executives of Georgia. Experience with plastic shuttles, including methods of controlling tension and effect on filling breaks, was also reported

Staff report

AT THE annual fall meeting of the Textile Operating Executives of Georgia—held October 3 in the Harrison Hightower Auditorium of the A. French Textile School, Georgia Institute of Technology—representatives from Georgia mills held an open forum to air mutual problems in slashing and weaving.

Jesse Bradshaw, Fulton Cotton Mills, led the slashing discussion; *James A. Wright*, Strickland Cotton Mills, led that on weaving.

(a) What material have you found to be most effective in controlling filling tension in plastic shuttles?

(b) Describe the method you employ in applying nylon monofilament in your shuttles.

(c) Have you found that changing from dogwood shuttles to plastic ones has affected your filling breaks?

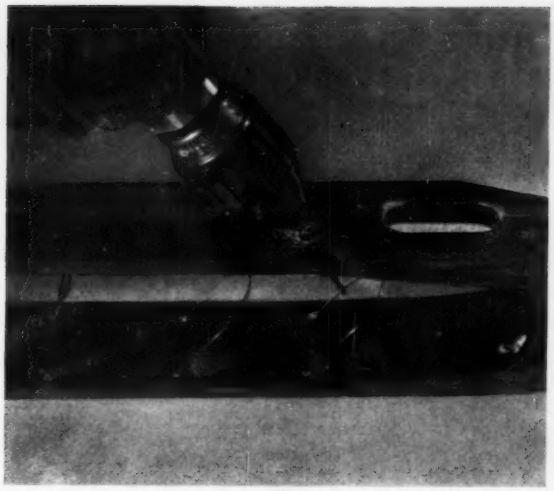
Thirteen mills replied. *Mill B* uses fur for tension control; *Mill N* finds lamb's wool and bristles give best tension control; and *Mill P* uses only a few plastic shuttles, and these are running as part of a wear test—no nylon is used, however. The balance of the reporting plants use nylon loops, in varying numbers and in varying location, to supply the needed tension.

Weaving discussion leader Wright.

The manner of applying the loops is illustrated in the pictures on these two pages. It is done essentially the same, regardless of the shuttle material (wood, plastic, bonded), with each plant locating the loops to meet its own tastes.

Five plants report a slight drop in filling breaks resulting from their adopting plastic shuttles; five report no change; and two report an increase. However, all changes could be called "slight" ones, and *Mill M* had this to say about the situation: "We did have a slight increase in filling breaks when we changed from a dogwood shuttle to a plastic shuttle. We changed later from a plastic shuttle to a bonded shuttle and realized a slight decrease in filling breaks."

(The slashing discussion will be presented next month.—The Editors.)



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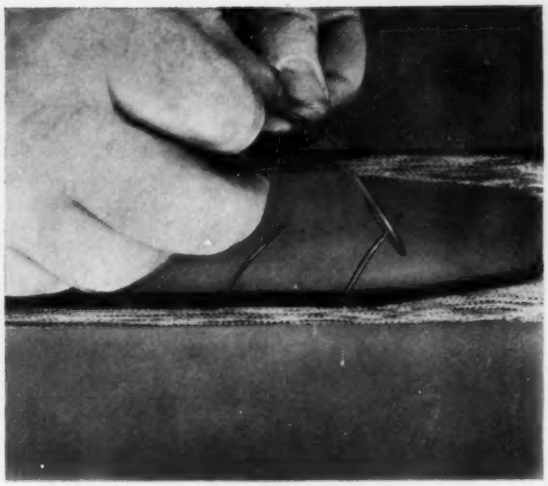

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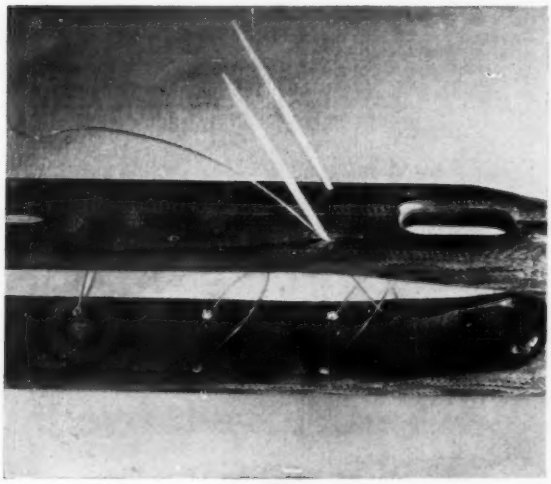

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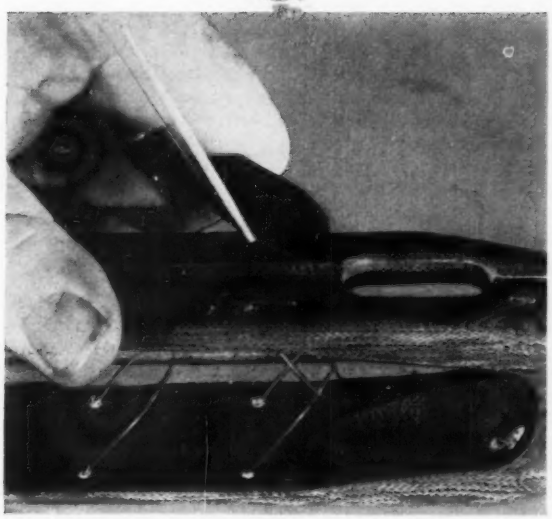
1—While some firms prefer to use jigs to assure accurate drilling for the loops, others consider the skill of some of their employees accuracy enough. Loop holes are carefully determined to place the first loop generally no closer to quill tip than first groove, with 1/16" holes being drilled ¼" from the edge of wall.

2—Nylon is adjusted to give desired loop length, which may require loops to touch at center of shuttle or overlap as here. Quill grooves are popular reference points used in locating the loops. Properly placed, they "caress" package from full diameter to empty quill, supply balloon and tension control. Length, number of loops, and loop location vary considerably.

3—Glue-dipped round tooth picks are shoved home to wedge loops in their holes. Some prefer to break the picks in two and hammer the pieces into the holes. Either way, whether full length or in pieces, they are driven tightly in place and then are usually broken off.

4—Where the tooth picks emerge from the shuttle wall they are pared smooth, and if pick is driven tightly it may be cut from any angle without loosening it.

5—Final step is to smooth with sandpaper, crocus cloth, etc. If this is properly done, toothpick and nylon become part of mirror-smooth shuttle wall.



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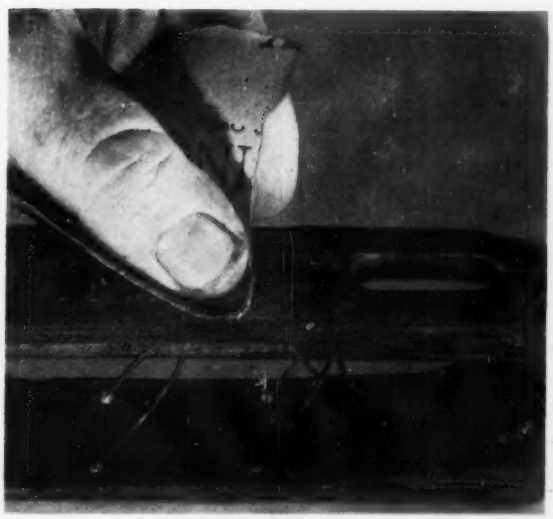


5

AATCC CONVENTION REPORT

On this and the following pages are presented abstracts of three outstanding papers given at the recent annual convention of the American Association of Textile Chemists and Colorists in Washington. A fourth paper, which won the Intersectional Contest for the Northern New England Section, appears in TI's Knitting Section, on page 129.

The HOW and WHY of carrier dyeing

Second-place paper in the AATCC Intersectional Contest

Piedmont Section Abstract

■ MANY OF THE synthetic fibers—polyesters, acrylics, and others—dye very slowly by normal dyeing methods. But certain chemicals added to the dyebath can step up their dyeing rates by 5 to 50 times.

The dyer can get complete details on using these chemicals, called "carriers," from the fiber producer, the dye manufacturer, or the supplier of the carrier. However, without a deeper knowledge of just how a carrier works, the dyer finds himself at a loss when the inevitable troubles crop up. More than ever, the practical dyer must have a more technical background if he is to successfully dye newer fibers and their blends.

It was a prime objective of this study to obtain new information, of use to the practical dyer, on just how a carrier works, and to provide answers to some of the questions on the best procedures for using carriers.

How Does a Carrier Work? Experimental studies have brought out these basic facts about carriers:

1. Carriers are absorbed by the fibers in appreciable amounts. They are not readily removed by standard rinsings or mild scourings.

2. Where a carrier is not absorbed, as in the case of tripropyl phosphate on Dacron, there is no speeding up of dyeing.

3. Carriers are held in the internal structure of the fiber by electrical forces, in the same manner as dyestuffs.

4. Not all carriers cause the fibers to swell, and swelling properties are not necessary for an effective carrier.

5. Carriers act *within* the fiber—attention should be focused on *fiber* activity, not *dyebath* activity.

6. The carrier must actually be present in the fiber if it is to accelerate dyeing—fabrics pretreated with a carrier do not dye as rapidly as fabrics in which the carrier is present during the dyeing.

To sum up, the practical aspects of carrier action are (1) The carrier acts within the fiber, (2) If the carrier is not absorbed there is no speeding up of dyeing, and (3) Factors that reduce carrier absorbence result in lower dyeing rates.

Practical Applications. This study makes it possible to answer some of the questions asked by practical dyers:

Q.—How much carrier should be used for a specific dye for a specific

depth of shade?

A.—More absorbed carrier is required for a dye of slow diffusion rate within the fiber. More absorbed carrier is needed in heavy shades to increase the diffusion rate of the dye away from the fiber surface. With a carrier of known pickup by the fiber, carrier concentration can be adapted to the need.

Q.—What effect does change in liquor ratio have on effectiveness of carrier action with constant percentage of fabric weight?

A.—Carrier absorption from bath determines carrier action. At high liquor ratios the bath competes with the fabric for the carrier, and as with exhaustion of disperse dyes, the quantity of carrier absorbed will be less. This results in weaker carrier action. With a carrier of lower water solubility, effect of liquor ratio will be less pronounced.

Q.—Why does a carrier lose its effectiveness when used on cellulose triacetate or polyester fibers that have been heat treated?

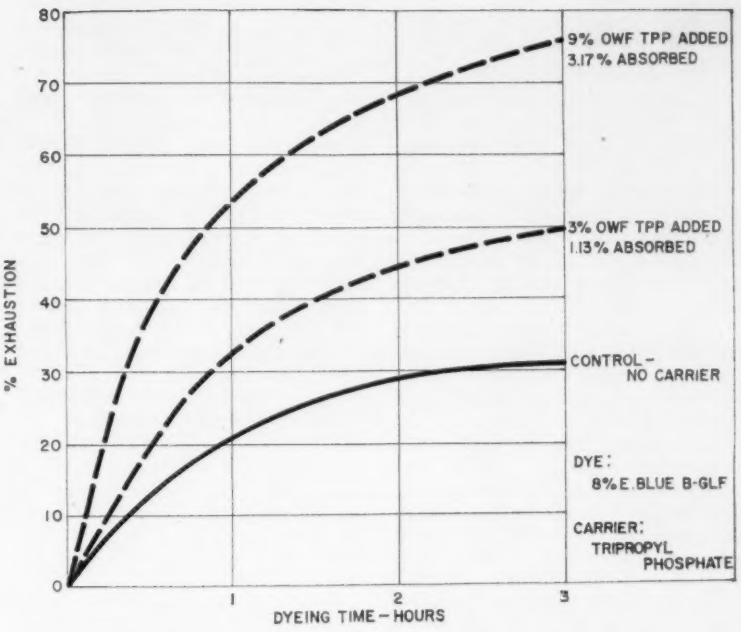
A.—Heat treatment causes the hydrophoic fibers to become more compact in structure, increasing the number of fiber-fiber bonds. There may also be an increase in the crystalline areas of the fiber, which reduces dyeable areas. Higher degree of carrier action with increased rate and quantity of carrier absorption is necessary.

Q.—Is there any basic reason as to choice of carrier and function of carriers in minimizing staining of disperse dyes for cotton and wool?

A.—Staining is proportional to the quantity of disperse dye residual in the dyebath. The greater the carrier action on the hydrophobic fiber, the less the staining on wool or cotton. The staining of disperse dyes is also dependent on pH and on surfactant present, as well as on the specific dye. The emulsification agent used in formulating the carrier, and the pH required for absorption of carrier will be factors which can contribute to variable staining between carriers.

Q.—What is the basic reason for control of pH in using carriers based on phenols?

A.—Phenols are not absorbed by the fibers as sodium salts; they must be present as free phenols. An acid pH is necessary to prevent formation of sodium salts, thereby permitting maximum absorption of the phenyl phenols by the fiber.



RELATION OF CARRIER ABSORPTION TO DYE EXHAUSTION

Progress in wash-and-wear wool

by John F. Krasny
and John Menkart
Harris Research Laboratories

Abstract

■ WOOL has many points in its favor in apparel use: comfort, pleasing hand, tailorability, sewability, and resistance to stains. It would be desirable to combine these advantages with the "easy-care" or "wash-and-wear" requirements of modern living. This paper is an attempt to show where wool stands at present in the wash-and-wear field, and what problems need to be overcome for further progress.

The first stage of the study was an examination of the behavior of a wide range of commercial wool fabrics, not intended for laundering and not in the wash-and-wear category, in modern home washing.

In view of the fact that automatic home washing machines are on the increase, in which tumble drying follows a laundering cycle when a low temperature is used, of short duration and under slow agitation, it was felt that if wool is to make a breakthrough into the wash-and-wear field, it will have to meet the requirements of this laundering method. Consequently, in the evaluations, a home washing machine and tumble dryer were used.

Methods and Materials. All fabrics were relaxed before laundering, by immersion for one hour at room temperature in water to which a wetting agent had been added, and air dried. A Maytag home washing machine and tumble dryer were used for the laundering of the fabrics, and after some experimentation the following conditions were adopted:

3 lbs load in laundering and drying

Normal water level, "warm" temperature setting

Slow agitator and spinning speed ("Modern Fabrics" setting)

3-minute soaping cycle

Tumble drying at "hot" setting until dry

After laundering and drying, the fabrics were evaluated for shrinkage, mussiness, and fuzz formation. Shrinkage was measured by means

ABSTRACTS

of templates and mussiness was evaluated subjectively on a scale of 6 (perfectly smooth) to 1 (very mussy and wrinkled).

The existing photographic standards were found to be inconvenient to use with these fabrics, which differed widely in surface texture and color; descriptive verbal standards were used instead.

Fuzz formation during laundering was also rated subjectively; the fabrics were draped at a bias over the edge of a vertical, back-lighted board, and their fuzz before and after laundering was compared with five visual standards. Since some fuzz is often desirable in wool fabrics, the difference in rating between the laundered and the original fabric was reported in each case.

Results and Discussion. Some 70 commercial all-wool apparel fabrics were evaluated, of which 40 were studied in detail. Then, based on the results obtained, a series of 120 fabrics was manufactured for a more intensive investigation. This work is still in progress.

The observations made were discussed in terms of the three factors of importance: shrinkage, mussing, and fuzz formation.

Shrinkage. Among the 40 commercial wool fabrics examined, the area shrinkage in 10 mild, wash-and-wear-type launderings ranged from 1 to 48 per cent. Five of the 40 had an area shrinkage of 4 per cent or less—or about 2 per cent in each direction. None of these fabrics was claimed to be washable on the label or by its supplier.

Although the laundering shrinkage figures did not include relaxation shrinkage, this factor is of no importance, since the problem of relaxation shrinkage of wool fabrics may be considered as on the way to solution in view of the Si-Ro-Set process for permanent creasing of wool fabrics, which can also stabilize the fabric in the flat state.

The fabrics were analyzed for fiber composition and for their construction to determine the causes of the wide variation in shrinkage. No correlation of laundering shrinkage with the fiber properties—fiber fineness, length, or crimp—was found; a more systematic analysis supported the conclusion that the contribution of fiber properties to laundering shrinkage is at best minor.

There was no easily recognizable relationship between shrinkage and any of the characteristics of yarn type (woolen vs worsted), count, or twist, nor with fabric weight or weave. However, a good correlation between shrinkage and the fabric cover factor was found to exist, but this only held within each weave. This is understandable because the cover factor is not a complete measure of fabric compactness.

Mussing. A number of wool fabrics have been found to exceed the rating "5" with respect to mussing or wrinkling, "5" being the best available on present wash-and-wear scales, after tumble drying; a "6" rating—smooth—had to be added to the scale to accommodate such fabrics.

Very few of the fabrics investigated thus far, which are satisfactory in shrinkage, fail on account of high mussiness after laundering.

Fuzz Formation. Some surface hairiness is often deliberately imparted in finishing. In the investigations, therefore, the fabrics were rated for the degree of departure from the original state as caused by laundering, and the data were reported as changes in rating rather than in absolute values.

Typical Results. The performance results of eight commercial fabrics with respect to shrinkage, mussing, and fuzz formation were demonstrated. A 4 per cent shrinkage, a mussiness rating of 4 and an increase in fuzziness of 0.7 units were considered the acceptable limits, although arbitrary.

Swatches of these eight fabrics were subjected to ten cycles of either washing and air drying or washing and tumble drying. Four of the eight fabrics were either perfectly satisfactory or on the borderline in terms of laundering shrinkage. Tumble drying had a substantial additional effect only in the case of those fabrics which shrank considerably even in washing alone, and which consequently cannot be considered wash-and-wear in any case.

In terms of mussiness, three of these four low-shrinkage fabrics were satisfactory and one was on the borderline when laundered and drip-dried; when tumble dried, all four were perfectly satisfactory.

Two out of the four fabrics which passed the other two tests fell down in fuzz formation. There were thus only two fabrics which fell within the acceptance limits in terms of all three properties. This situation, indicating that shrinkage and fuzziness are the two major problems, and mussing is much less serious (at any rate in medium and heavier weight materials) is quite a representative one for wool fabrics.

Although the 40 fabrics evaluated were not designed for the "wash-and-wear" category, among them there were several which appear to be good candidates for wash-and-wear applications. In the light of this, it seems reasonable to believe that by proper attention to fabric design, possibly in combination with appropriate finishes for setting, nonshrinking, and permanent creasing, a respectable range of all-wool wash-and-wear materials can be produced.

Dyeing Dacron-cotton by Thermosol process

by J. J. Iannarone
and W. J. Wygand
E. I. du Pont de Nemours & Co.

Abstract

■ THE THERMOSOL process, a continuous method of dyeing in which dye fixation and penetration are accomplished with dry heat, is of particular interest in the dyeing of Dacron and cellulosic blends. In the process, selected disperse dyes are used for the Dacron and, where necessary, vat dyes are applied to the cotton by conventional procedures. In general, fastness properties are equal to vat-dyed cotton.

The process offers several advantages over aqueous batch dyeing procedures; however, it lends itself best to longer yardages. It requires no carrier, and dye utilization is excellent. Since the fabric is processed in open width, the danger of rope marks is eliminated. And the operations of heat setting and dyeing occur simultaneously; dyeability being unaffected by pre-heat setting.

Preparation. The typical prepara-

tion procedure for fabrics of Dacron and cotton is as follows: (1) Desize, (2) Rope scour or modified progressive jig boil off, (3) Mercerize, (4) Dry, (5) Singe, (6) Open-width bleach (if necessary), (7) Frame dry to grey width. In many instances it may be possible to eliminate desizing and begin by mercerization in the grey.

In the Thermosol process, singeing can be done before dyeing, while it is usually avoided before an aqueous dyeing procedure. Singeing can produce melt balls on the surface of the fabric; which absorb more dye causing a speckled appearance, and if singeing heat is not uniform across the fabric it may cause shading. Differences in dyeability from one part of the fabric to another are effectively covered in the Thermosol process since dyeing takes place more or less "in situ."

The Process. Three basic steps are involved in the Thermosol process: Padding, drying, and heating to fix the dye; all must be carried out carefully. Complete dispersion of the dyes is necessary to avoid specking, and preferably the dispersion should be passed through a colloid mill.

In drying to prevent the tendency of dyes to migrate, precautions should be taken. Presence of thickener and minimum of wetting agent will help control migration, but uniform heating is essential; otherwise, cross-shading and back-to-face shading may result. The temperature of drying should be between 250-300 F.

After drying, the fabric is preferably passed over a clip frame into the Thermosol unit, a roller-type oven, where temperatures of 400-450 F are possible. In general, about 60 seconds at 400-425 F is sufficient for fixation and penetration of dye into the Dacron.

Dyes Used. The most important class of dyes applied to Dacron by the Thermosol process is the disperse dye (vat dyes have not been widely adopted due to the limited selection and difficulty with shade and union control). Generally, between 75% and 90% of the originally padded dye is retained by the Dacron component of the blended fabric.

When vat dyes are used they offer the advantage that only one padding operation is required. For optimum dye fixation a full 90 seconds at 410-425 F is required. Since some dyes may preferentially dye the cotton, resulting in difficulty of shade control and poor balance between the two fibers, particularly in heavy shades, the use of vat dyes for the most part should be limited to light and medium shades.

The general procedure, then, is to employ disperse dyes for the Dacron and vat, sulfur, naphthol, fiber-reactive, or direct dyes for the cellulosic fiber.

Variations. The dyes can be applied in a number of combinations:

1. Disperse dyes and vat dyes applied separately. In this method, the Dacron is dyed first and the cotton is then dyed to match the Dacron. This method offers the advantage that the disperse dye stain is removed from the cotton and maximum shade control can be maintained.

2. Disperse dyes and vat dyes applied together. This method creates a problem in shade matching since some of the vat dye will fix on the Dacron. Hence it is not a popular method.

3. Disperse dyes only. For certain light to medium shades, such as beige, turquoise, maize, and pinks, dyeing only the cotton may not produce acceptable coverage. In such instances, satisfactory solidity of shade can be obtained by dyeing only the Dacron with disperse dyes by the Thermosol process.

4. Disperse dyes and fiber-reactive dyes. In this application, the disperse and fiber-reactive dyes are applied to their respective fibers by the combined Thermosol and Thermofix procedures. By incorporating the disperse dyes in the same pad bath it should be possible to dye both fibers in one heat-fixing operation. Many encouraging results have been obtained in the laboratory and in small-scale plant trials, especially in light to medium shades.

ABSTRACTS

Problems. There are some problems connected with this method. The alkalinity required for the fiber-reactive dyes causes certain disperse dyes to precipitate and speck the cloth badly; hence the disperse dyes must be carefully selected. The use of special dispersing agents helps in minimizing this problem but does not overcome it entirely.

Many disperse dyes, which are compatible with the alkaline fiber-reactive system, yield weaker shades than if used at similar concentrations in the regular Thermasol process. Therefore, to take advantage of the one-pass dyeing operation of this method it may be necessary to sacrifice some of the disperse dye efficiency.

It has been noted that in high concentrations required, the solubility of certain fiber-reactive dyes is adversely affected, especially in the presence of high concentrations of disperse dye. As a result, the shade produced on the cotton portion of the blend is weak. The disperse dyes, on the other hand, are somewhat weaker on the Dacron because of the alkalinity of the pad bath.

These problems, however, are not insurmountable.

Full commercialization of the Thermosol process is now a reality in several mills. Its use should spread as increased quantities of fabrics become available and the need for long yardages of a given shade increases.

Uniforms of filament Dacron solve lint problem

■ LINT, a major problem in industries producing delicate mechanical and electronic components, has been found to be virtually eliminated from manufacturing areas when operatives wear uniforms woven of continuous filament yarns of 100 per cent Dacron, the Du Pont Co. reports.

A pioneer in using the new uniforms is Sylvania Electric Products, Inc.

To keep the quality of Sylvania electron tubes high, it is imperative that the manufacturing area be kept lint-free. Although the Sylvania plant at Altoona, Pa., is completely air conditioned — a good weapon in an anti-lint campaign— it was found that the lint count on the production floor could be even further reduced by clothing the women assembly line workers in the lint-free uniforms of Dacron.

To qualify for use in this plant, the uniform fabric must pass a minute examination under a 10-power magnifier, and show up as a completely smooth, lint-free weave. This can be achieved only with continuous filament yarns, as fabrics made with some of the natural fibers, or with synthetics in the staple form, have a "fuzziness" that generates lint, even though this fuzzy quality may not be detectable by the naked eye. This results from the abrasion of wear, which causes the staple ends to break, it was explained.

Tips for woolen carders

Making yarns for homespuns

Imperfections often left in woolen yarns when they were spun by the fireside formed the basis of today's nub or slub yarns. They are not difficult to make, and they should command premium prices.

THE WOOL BUREAU, INC.

By far the bulk of nubbed fabrics is made from blends with nubs added to the mix in the blending room, and since mechanical nub feeding devices do not handle large slubs too well, all of these are incorporated on the blends at the picker. The mixing picker shown here to open matted masses of stock has been "stopped" by high speed photography.

by William J. Crofts
Exclusive

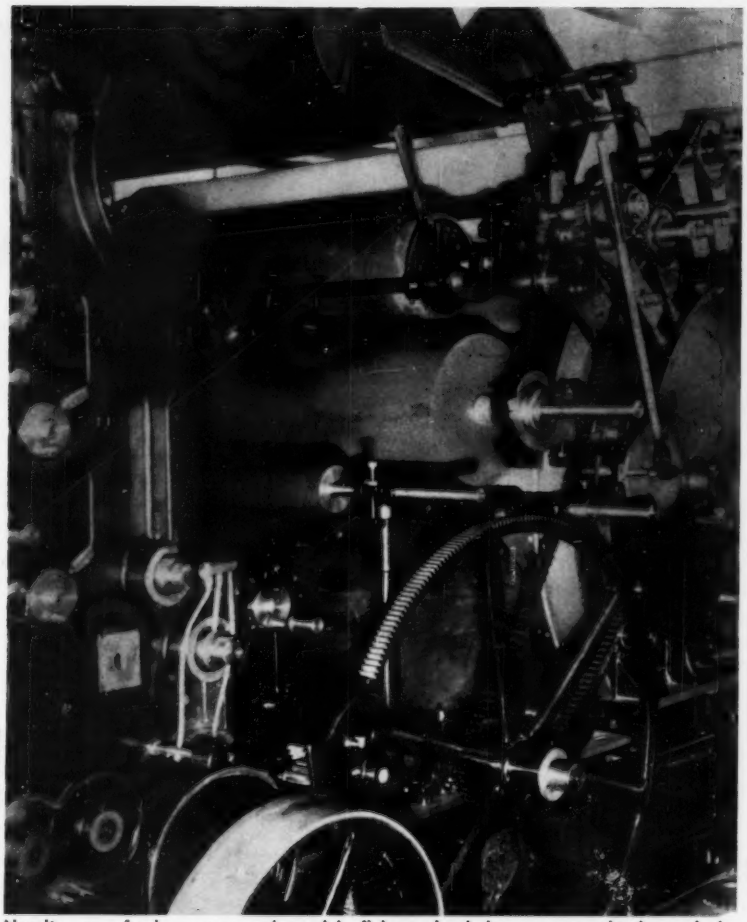
BEFORE the appearance of powered textile machinery, most of the wearing apparel used was made right in the homes of the early settlers. Only the wealthy could afford the imported broadcloths made by master craftsmen in the mother country.

The wool from the family sheep was hand washed, sun dried, and hand carded into small rolls using cards similar in principle to those used today for hand stripping modern cards. Then these rolls of carded wool were placed on the spindle of the spinning wheel and drawn out in a single strand by the finger tips and twisted into yarn by the fast whirling spindle.

This was a slow, laborious process, and most of the yarn was rough, slubby—and when two or more colors derived from vegetable dyes were used (the colors were not always well carded) a blotchy, streaky yarn often resulted. Naturally most of the cloth (woven on hand looms and known as homespun) was rough and nubby but wear and warmth were the prime considerations.

Nub Effect Still Popular. Originally the first colored nubs were deliberately inserted into tweeds for the purpose of imitating this homespun cloth, and in many mills today these fabrics are designated as homespun. However, nubs or slubs are used in all types of modern wovens, and these gaily colored items cleverly manipulated into a fabric give character to an otherwise uninteresting piece of cloth. An attractively nubbed fabric usually brings a higher price than a plain piece of cloth.

Nub? Slub? Slug? Nubs are round pills of various sizes. And then there are the elongated nubs known as slubs or slugs, the latter



WHITIN MACHINE WORKS

Novelty yarns for homespuns, such as slub, flake, and splash yarns, may also be made by using the flake yarn attachment for woolen cards shown in this mill installation photograph. Pieces of roving are fed into the card web from a spool of roving which rests on the fluted spool drum. Construction of this unit is sufficiently flexible to produce flakes or splashes ranging in length from ¾" to 3" at regular or irregular intervals. The device permits the use of roving of various colors for making the slubs and splashes. On finer counts splash yarns can be produced with one or two different colors without increasing the diameter of the yarn, according to the manufacturer of the attachment.

giving far more interest to a fabric. Slubs vary in length from one to three or four inches, and sometimes both nubs and slubs are incorporated in a yarn. Many years ago woolen mills made their own nubs, but today it is more economical to buy them ready-made.

Any fine short wool stock with pronounced felting qualities is suitable for making nubs, the felting quality being essential for adding toughness. Yet nubs and slubs must be fairly soft.

If the pellets are hard it makes it hard for the card to incorporate the nubs into the web, and many of them drop out under the card and many shake out in the spinning operation. There is far more end breakage, especially on the frame or mule, since in drafting the roving the fibers pull or slip away from a hard smooth nub.

A nub, or slub, that is fairly soft and fuzzy affords more "cling" to the fibers of the web on the card and is more easily blended into the roving and yarn and with less breakage. If made from a good felting stock, a soft nub or slub will hold its size and shape well enough *if the card is properly set and adjusted.*

Nubs and slubs can be obtained in many sizes, and of course the size must be gauged according to the size of the yarn—large slubs one inch long for instance would not be suitable at all for a five-run yarn, and a very small nub would be covered up and lost in a heavy one-run yarn.

For 3.5- to 5-run yarns, nubs the size of bird shot pellets are about right. And for a one-run yarn made from a good quality long fibered stock slubs from one to three inches in length are not too big.

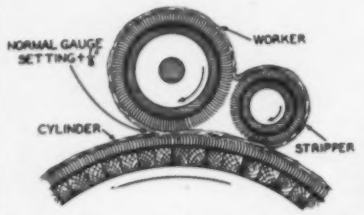
It must be understood that the long slubs are broken up by the carding action, so that usually the maximum size appearing in the roving is about one inch in length. If the nubs or slubs are oversize for the yarn, a larger percentage drop out while the blend is being processed into yarn—breakage is excessive both at the card and during the drafting since there is not enough fiber in the web and the roving to carry or hold the oversize nubs or slubs.

The writer recalls an instance where the mill was making a 1¾-run, heavily slubbed yarn for ladies' coatings, and the customer called for bigger and bigger slubs, saying he wanted a knobby looking fabric. By raising more workers on the card the slubs came through much larger — large enough to satisfy the customer—but production in the spinning and weaving suffered greatly because of the increased breakage.

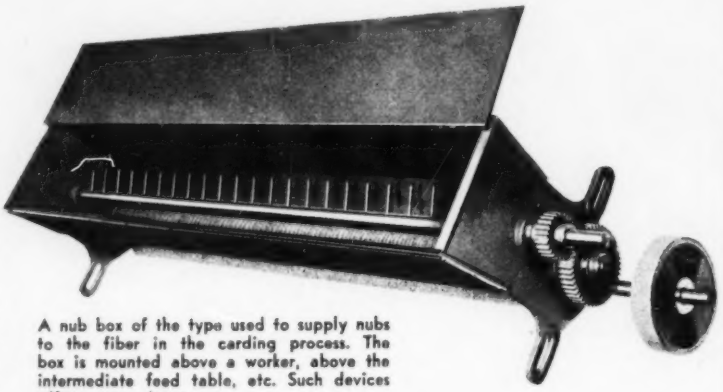
This was a case in which the slubs were much too large for the yarn size, and one solution would be to make the yarn heavier, say 1⅝ run, and reduce the number of threads in the fabric. Slubs are used in 2-run yarns or heavier.

Needed: A Good Mechanical Nub Feeder. In the long history of woolen carding, many mechanical devices for incorporating the nubs or slubs into the blend on the card have been patented. Usually they function at some point on the double finisher, but to date none has been completely successful. The devices all require too much attention and involve too much "human element." It remains for someone to design and invent an apparatus that will deliver these pellets evenly to the finisher card.

The great weakness of all such devices lies in their failure to sup-



"A card is prepared for a nubbed blend by raising all the workers on the metallic breast 1/8" and by raising five or six of the eight workers on the main cylinder, leaving just enough closely set workers to card the stock into a web that will not break. If . . . a double breaker it is best to raise all eight workers on the first cylinder with only two or three workers next to the fancy of the second cylinder set down closely to card the stock into a web."



A nub box of the type used to supply nubs to the fiber in the carding process. The box is mounted above a worker, above the intermediate feed table, etc. Such devices offer many advantages.

WHITIN MACHINE WORKS

ply nubs evenly at all times. When the hoppers are full too many nubs are delivered; as the supply level drops in the hopper, fewer and fewer nubs are delivered to the card.

The nubs inside the hopper must be kept agitated at all times. If they are not, the nubs will lie dead or stationary—in nearly all the mechanical devices available today there are dead pockets not reached by the agitating beater.

Nubbing Devices Offer Advantages. There are tremendous advantages in using nubbing devices, since on the first section of the card (and on the first section of the double finisher, too) all workers can be set down *if the device is mounted on the last section of the finisher.* With workers set down, uncarded picked stock may be used in the blends to reduce the initial blend cost. Heather mixtures may be used with the assurance that all colors will be carded and evenly blended.

The greatest advantage of all is that the Peralta rolls may be set down tightly, allowing the use of burry wools or wools loaded with vegetable matter. This reduces costs by eliminating many of the preparatory processes.

Then there are fewer nubs lost to drop under the card and contaminate the card waste. When such nubs are mixed in, the waste loses in market value because the brightly colored nubs cause specks in yarns and cloth when the waste is manipulated back into a blend. With the workers down, the web will be stronger, and better roving and yarn result.

When Is Nub Content Correct? Assume that the prescribed weight of a roving with nubs added is 160 grains per 50 yards, and that the fabric calls for 10 per cent of nubs (which means 144 grains of roving plus 10 per cent of nubs). When applying the nubs with a mechanical device and the roving weight from the card registers seven grains heavy the carder is at a loss to know whether the extra weight is from too many nubs or if the first breaker feeder is delivering too much stock.

To determine which is correct, the nub feeding device must be stopped and a weighing of clear roving made. If this weighing registers close to 144 grains, then it is a matter of too many nubs and the speed of the nubbing device must be regulated to feed a smaller amount. If the clear roving weighs 151 or 152 grains per 50 yards, then it is a case of too much stock from the first breaker feeder and the weights must be adjusted at the feeder and brought through to the standard weight of 144 grains. Then the 16 grains of nubs are added by starting the nub feeding device. All this means lost production time.

The "Hog Trough." Of all the devices used, the hog trough, so called because of its shape, is the best known and most widely used. It is like an enlarged hog trough with a slotted opening extending the entire length of the bottom. In this slot a single feed roll turns slowly, and a beater fitted with paddles inside the trough hopper revolves (also slowly), keeping the nubs agitated and circulating around against the teeth of the feed roll.

The writer had several of these in operation at one time. With steps leading up to a stationary platform beside each card, an operator using a long stick could stand on the platform and reach into the hog trough hopper and stir up the nubs. This he did every 20 minutes to shake up the nubs that lay stationary in the dead pockets at the sides and bottom of the trough. He used a long-handled container to feed in more nubs as needed with the card in operation, and with all this careful attention the results were quite satisfactory.

Most Nubs are Added at Blending. By far the bulk of nubbed fabrics is made from blends with nubs added to the mix in the blending room, and since mechanical nub feeding devices do not handle large slubs too well, all of these are incorporated into the blends at the picker. This method allows for uninterrupted production, and there is no question about roving weights—the nubs or slubs are in the blend and the automatic feeder weighs them together with the stock.

As the blend is being run, and since nearly all workers are raised, roving waste from the card and from the spinning department can be fed back into the feeder without fear of changing the shade.

With nub feeding devices, and with most of the workers set closely, roving waste should be fed back sparingly or the nubs—usually of a contrasting color—will card out and make varying shades in the yarns and fabric.

With nubs or slubs added to the stock, far more preparation of the stock is necessary. The Peralta rolls must be raised or the nubs will be pulverized, hence all vegetable matter must be removed from the wool, especially in preparation for the finer yarns where shives and pieces of burrs cause serious yarn breakage.

If reworked stock is part of the blend, this stock must be precarded to remove hard bits of rag and hard yarn. Bear in mind that with so many of the workers raised there is not much carding.

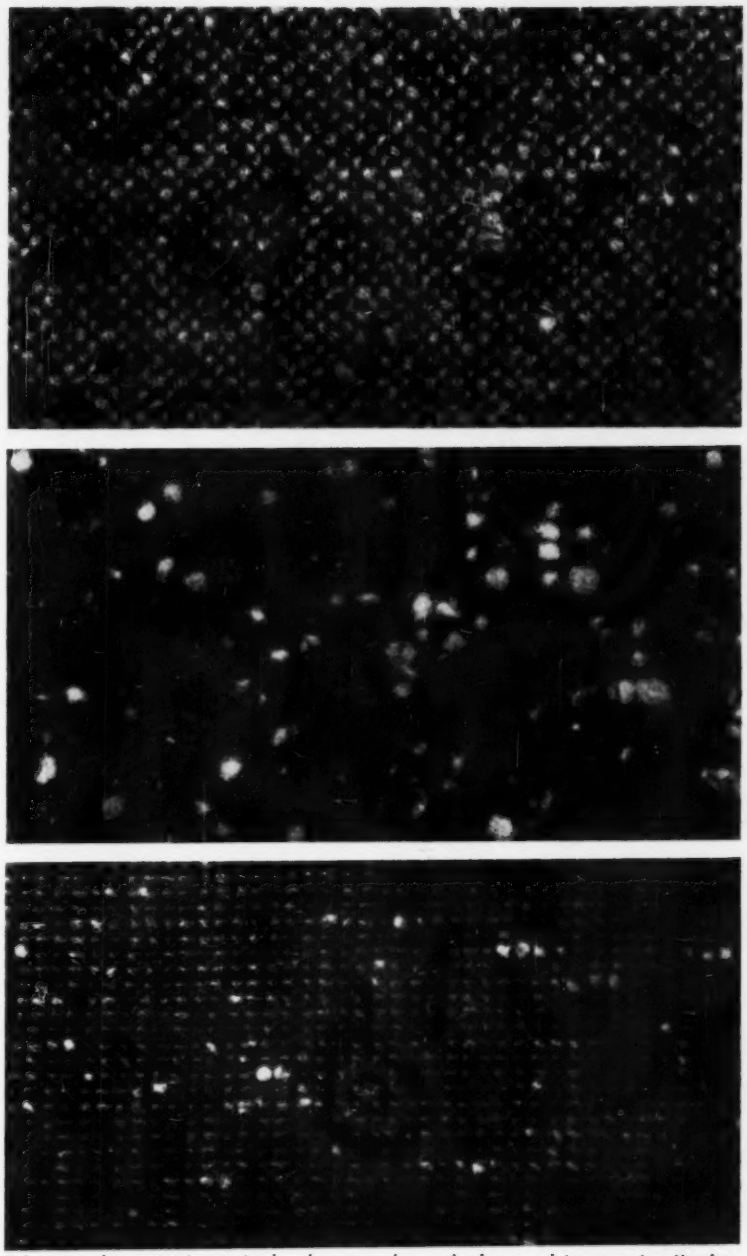
Setting up the Card for "Blended" Nubs. A card is prepared for a nubbed blend by raising all the workers on the metallic breast ⅛", and by raising five or six of the eight workers on the main cylinder, leaving just enough workers set closely to card the stock into a web that will not break. If it is a double first breaker it is best to raise all eight workers on the first cylinder with only two or three workers next to the fancy of the second cylinder set down close to card the stock into a web.

The top Peralta roll is raised so that a No. 24 card gauge fits loosely between the rolls. Where spring pressure is used, turn the hand wheels until all pressure is released; then a few more turns of the hand wheels raises the top roll clear of the bottom roll. With hydraulic pressure, all pressure is released and the top roll jacked or pried up and wooden blocks inserted between the top and bottom roll bearings.

At the first cylinder of the double finisher it is best to leave the first and last workers as they are and raise all other workers ⅛". At the finisher cylinder the first three or four workers can be raised ⅛" and the remaining workers nearest to the fancy either raised 1/32" by inserting short pieces of thin cardboard under the worker bearings—or left as they are, depending on the size of nubs.

These settings afford control of the stock flow through the finisher and give enough carding to form a strong web if the stock is well prepared.

If the fabric calls for large nubs or slubs, setting the doffers away from the cylinders so that a No. 24 card gauge fits loosely will bring the pellets through the card in much larger sizes. The doffers are the key rolls for regulating the size of the pellets, as close settings there reduce and open settings in-



Fabric samples containing vari-color slugs, or nubs, randomly spaced to prevent patterning.

crease the nub size.

Card Clothing Should be Good. The popular notion that a card with clothing that is dull and in poor condition is best for this type of yarn is a fallacy. Good, strong clothing, especially on the cylinders and doffers, carries the pellets through the card better and with less damage to their shape and size than will bad clothing.

If the clothing on just one cylinder and doffer is weak, the doffer does not clear the cylinder quickly and cleanly and the cylinder carries nubs around many times, gradually wearing down or breaking the pellets. If the cylinder wire is weak, a larger percentage of the nubs falls under the card with the card waste.

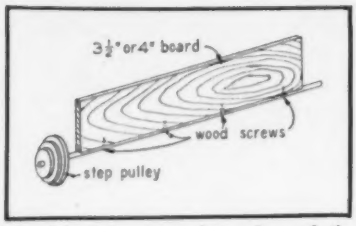
On the other hand, with good, well-pitched clothing on both the cylinder and doffer, the doffer catches the bulk of the web and nubs at the first revolution of the cylinder; with sharp, well pitched wire on the cylinder a larger percentage of the nubs carried past the doffer is held in the firm grip of the wire and carried around again to the doffer. It must be pointed out that the efficient functioning of the fancy is vital for best results.

Short pieces of fancy fillet leather ⅛" thick are used as shims under the worker bearings, and it is well to have a supply of pieces of cardboard of various thicknesses to use under some of the workers. A piece of ¾" or 1" pipe three or four feet long is useful as a lever for raising the worker.

Brace one end on top of the stripper and pry upwards against the worker shaft to raise the worker easily and then insert a leather or cardboard strip.

When changing the card back for a nubless blend, the leathers and pieces of cardboard are removed and workers returned to normal settings.

Now Bring on the Nubs. After all changes are made the stock is brought through the card and the correct roving weight is established. Then a hank of roving is reeled off to be compared with a hank from the original sample for shade and, more especially, for the size of the nubs.



This slub maker is used in place of the web support roll at the tape condenser. It is made of an inch board some 3½ to 4 inches wide attached edgewise with wood screws to a shaft which has a diameter to match the bore of the web support roll bearings. It is equipped with a step pulley which receives its motion from the grooved pulley on the dividing roll on the condenser. The doffer is run faster than the tape rollers would normally take the stock. This speed allows the slub maker to lift the stock in waves or bunches to the calender or dividing rolls. Result: slubby yarn.

If the nubs are too small, new card settings are made, more open perhaps—just raising one more worker at the finisher may bring the desired result. If nubs are too prominent, one or more workers are set down.

Testing for shade and for nub size is much more certain when the test is made on spun yarn—by taking a hank of three strands of roving to a mule, breaking off three ends on one of the spools and feeding the three strands of roving through under the spool in place of the broken ends, and then spinning the hank of roving on to three bobbins.

This yarn is reeled off and the bobbins then washed and dried together with a hank of yarn from the original sample. This gives a more accurate comparison than testing the roving.

After all specifications for shade, size of roving, and nubs have been met it is a wise plan to enter into a data book all card settings and speeds. A card may be scheduled to run one large nubbed blend, then perhaps two or three nubless blends, and after that another blend containing nubs. Referring to this data will save much time and guesswork when changing it.

Stripping Influences Nub Size. Assuming that the card was completely stripped before starting the blend, then the nubs are at their biggest. And as the lot runs and card wire gradually fills with strippings, the size and number of nubs gradually decrease. For this reason a hank of roving should be taken from the card on every shift and compared with the standard sample.

Stripping the entire card in one operation makes an abrupt and sharp increase in the size of the nubs, so for better uniformity in size and number it is best to strip one section of the card at each stripping. The customer does not want cloth where one piece has numerous and prominent nubs, another piece has fewer and smaller nubs, or, worse still, a piece of cloth where the number and size varies throughout the piece.

As the card wire fills with strippings, the nubs ride higher on the points, hence more drop out from the cylinder and in the case of the doffer the wire has less receptivity.

The Scots are masters of the art of making nubbed tweed fabrics in beautiful heather mixtures, copying the warm rich colors of the Highland heather. The Scottish method of adding nubs to the blend at the card utilizes a long slatted apron suspended from the ceiling over the finisher card.

This apron is divided into sections of equal lengths by painted slats at spaced intervals.

The correct amount of nubs is weighed and evenly distributed over one section of the apron which delivers nubs to a pair of feed rolls located over the top of last cylinder of the finisher card.

Nubs are then combed or brushed off the feed rolls into the card. This at least is one sure way of incorporating a copious supply of nubs evenly into the roving.

There is Room for Domestic Producers. My daughter, while shopping for yard goods in a large Boston department store, found some imported nubbed Scotch tweeds that were different with a capital "D" and very pleasing to the eye. These fabrics with heather backgrounds were so heavily nubbed as to almost cover the surface of the cloth, giving a true

pebbled appearance both to the eye and touch.

At $8.50 per yard my daughter bought two yards to make up into skirts and in going back two days later to buy more for some of her friends found the entire yardage sold out—snapped up by women customers eager to get something different from the usual run of the mill. These same fabrics could be reproduced right in this country, but it is a project for small mills making specialties.

Irish tweeds are the nearest approach to the original homespuns of the early days of woolen cloth making. Made from coarse, heavy, and very rough yarns (the rougher the better), these fabrics are used largely for topcoatings. Many years ago, and perhaps today, genuine Irish tweeds were woven on hand looms in the homes of Ireland. And as peat for heating purposes was burned in open fireplaces, these fabrics had a smoky odor absorbed from the open peat fires.

One Way of Doing It. One method of making yarns for these tweeds incorporates a one-cylinder card which is both a breaker and finisher. Instead of an automatic feeder, a long wooden slat apron with feed rolls is attached to this one-cylinder card, this apron being divided into sections by painted slats at intervals.

The stock is blended in the usual manner and then weighed out in small prescribed amounts and spread evenly by hand on a section of the feed apron (nubs can be added to give a pebbled appearance to the yarn). The feed rolls feed the stock in, and after passing through one cylinder and its workers the web is condensed into roving.

Naturally with only one carding the roving is rough, and colors are not completely blended—the desired result. This operation could be done on a double finisher by raising all the workers of the first cylinder.

One manufacturer in this country many years ago, before the enactment of the labeling law, made tweeds by this method and sold the fabric as genuine Irish tweeds. To add authenticity to his claim the cloth was exposed to wood smoke to give his product a smoky odor similar to the genuine article.

Nubbed and slubbed fabrics have been popular for many generations, their popularity waning for a season or two but they always come back with recurrent popularity. If made from good wool stock that takes and holds the bright colors over a long period of time, these pellets give spice and variety to almost any fabric. A harmonious blending of colors that gives eye appeal is the secret to the success of any fabric, a blending of colors such as we see in nature at certain seasons.

Keep those sprinkler valves open!

■ THE MOST important duty of a plant fire organization is to see that water is available at the automatic sprinklers at all times and that sprinklers have full opportunity to do their job while a fire is in progress, an article in a recent issue of *Factory Mutual Record* points out. This means that primary attention must be given to keeping the sprinkler control valves open.

Following is the recommended supervision procedure for sprinkler valves:

1. Inspect each valve carefully every week.

2. If a valve is found closed, investigate the reason, correct the condition, and reopen the valve promptly.

3. If valves must be closed for piping repairs or changes, put on them a tag furnished by the insurance company and follow the precautions given on the tag.

Action During a Fire. Here are the things to do during a fire:

1. Check the sprinkler valve at once to make sure it is open.

2. Station a man at the valve to prevent unauthorized closing.

3. Keep the valve open until it can be safely closed.

4. After closing, continue to keep a man at the valve, ready to reopen it promptly if fire rekindles.

5. Replace opened sprinklers and restore protection as soon as possible.

When Water Mains Must Be Shut Off. Usually when yard mains must be shut off for repairs, changes, or extensions, it is possible to provide a temporary emergency water supply to the affected sprinkler systems by running hose lines from hydrants on other mains and connecting one line to the 2" drain on each of the sprinkler systems.

The amount of water thus made available is below the normal supply but is adequate for a few sprinklers, enough to extinguish or control most fires likely to occur.

Ask for TI's 1959 Index

THE SUBJECT INDEX of articles which appeared in "Textile Industries" in 1959 (Vol. 123) will not be included in a regular issue of the magazine. Instead, the annual index will be produced as a separate publication and furnished free to those who ask for it.

Either write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga., or use the handy postage-free card on page 167 to request a copy.

The index will be most helpful to readers who preserve their copies of "Textile Industries" as they are received, either in files or bound volumes, as it will enable them to quickly locate articles in which they are interested.

For those who do not save their copies of the magazine, the index will still be useful, since files of "Textile Industries" are available in the majority of public libraries in the textile manufacturing areas.

Caldwell Ragan, Jr., (left), assistant manager, and J. P. Bell examine some of the put-ups supplied to customers. J. C. Ellis of the Gastonia plant is general superintendent of Trenton Cotton Mills, Incorporated, Abernathy Division, Statesville, North Carolina.

Better yarn for less money

At the recently modernized Statesville, N. C., plant of Trenton Cotton Mills higher quality combed yarns are being produced 20% more efficiently

Staff prepared Exclusive

DURING the past two years Trenton Cotton Mills, Inc., Abernathy Division, Statesville, N. C., has engaged in an extensive modernization program. This followed on the heels of a program completed at the company's Gastonia plant. The company now produces yarns which for quality and strength virtually make formerly accepted standards obsolete.

As pointed out by Caldwell Ragan, executive vice-president and general manager, "Under present competitive conditions the only way to stay in business is to spend money to keep modern."

The mill has just completed installation of 24 deliveries of new, high-speed breaker and finisher drawing and eight new 10″ x 5″ roving frames. They replaced ten 8″ x 4″ frames—15″ x 36″ roving cans are used. Roving doffing cycles are 3¼ times greater than formerly.

New umbrella creels were put on 80 spinning frames equipped with a new drafting changeover. Also, a new 372-spindle C-Type spooler was installed. This equipment makes cheeses containing about 41,000 yards and weighing about three pounds each—a new warper makes section beams from these.

New winders make precision packages to customer requirements; hot or cold wax application is available.

The mill makes combed cotton yarns ranging from 30s to 50s, and two- and three-ply yarn in following put-ups: ball warps, section beams, cheeses, cones, tubes, perforated tubes, Franklin springs, pushout tubes, and skeins. Yarns are made here for weaving, thread, rubber covering, braiding, tape, and other trades.

A total of about $400,000 was

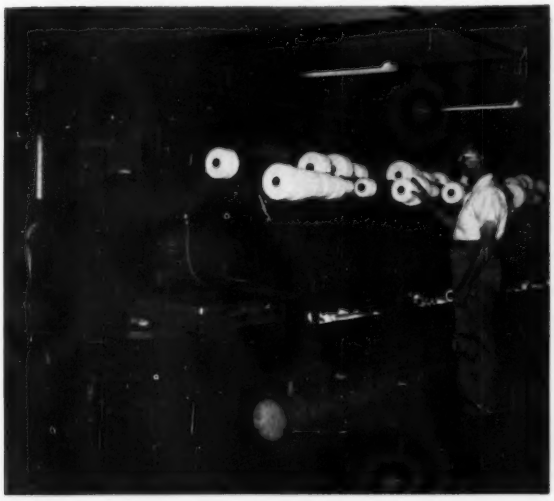
TOP, LEFT
Twenty-four deliveries of high-speed drawing replaced the older, slower machines.

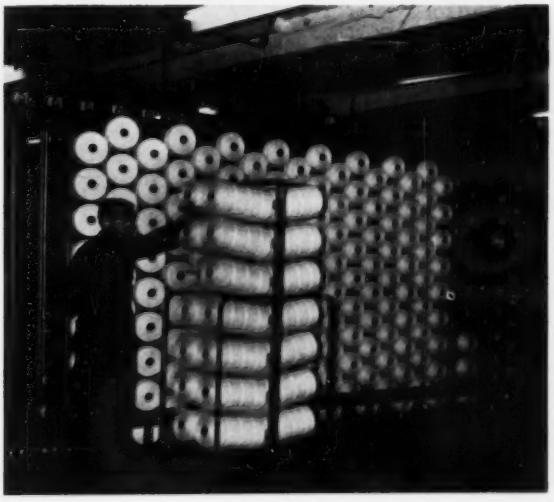
TOP, RIGHT
Overseer of spinning, Earl G. Johnson, checks clearers on one of the new 10" x 5" fly frames.

CENTER
Superintendent J. P. Bell looks over the packages in one of the umbrella creels installed in spinning.

BOTTOM, LEFT
Section man J. C. Bost checks wind on the new 342-spindle, Type C, automatic spooler.

BOTTOM, RIGHT
A new warper to match the spooler uses the spooler cheeses in its creel, makes section-beam put-ups.





spent on the improvements, and the modernization program has enabled the mill to manufacture a higher quality yarn 20 per cent more efficiently. A substantial improvement in quality was achieved, according to Mr. Ragan.

All buildings on the mill premises were painted on outside and inside.

There is less than two per cent job turnover, attesting to the excellent employee relations and job satisfaction prevailing here. The work assignment may be slightly more with the new machinery but the workload is actually less as a result of the improvements in operation. There are about 165 full-time employees.

The 20,000-spindle plant produces about 50,000 pounds of yarn each week, and the stock processed is of high quality long staple cotton. Every care is taken to manufacture only high quality combed yarns to meet the specific needs of the customer as to twist, tensile strength, and put-up. A laboratory equipped with essentials to keep quality up is maintained, and tests are made on a continuous basis to very exact standards.

Says Mr. Ragan: "We expect to see much better times for the machinery builders and the textile mills during the next several years. The last five or six years have been lean for the textile mills but a large number of the weaker spindles and sub-standard producers have been weeded out."

Plant maintenance

What you can do to increase valve life

Tips for installing, using, and maintaining valves

■ THESE PRACTICAL suggestions for the installation, operation, and maintenance of valves (gate, globe, angle, and check) are contained in a well-illustrated chart* designed for posting on mill bulletin boards for the guidance of maintenance personnel:

Installation Tips

Cleaning. Make sure that all valves and piping materials are clean and free from rust and scale. Blow out all pipe and fittings with compressed air. Remove protective covers from valve openings just before installing the valve.

Cutting Threads. Use sharp dies and thread the pipe to the correct depth of thread. This will prevent the pipe entering the valve too far, damaging the diaphragm and causing leakage. Blow out all metal chips with compressed air and wipe excess cutting oil from threads and inside of pipe.

Pipe Compounds. Use pipe joint compound sparingly, and apply it to the male threads only. Never put joint compound on the female threads as the excess compound will interfere with the operation of the valve and contaminate the pipe line when the joint is made up.

Wrenches. Make sure that the valve is in the closed position when it is installed to resist distortion. On screwed valves always apply the wrench to the hex which is being made on—never on the opposite hex. When installing flanged valves, make sure that the gaskets are clean and that they are properly placed on the flange faces. Bolts should be stressed equally in opposing pairs during the make up.

Leverage. Make all joints tight, but do not overstress. This is especially important when tightening packing and bonnet nuts.

Welding. Exercise care in welding to keep welding beads out of the piping system where they may cause damage to valves and other equipment.

Inspection. After installation, it is good practice to clean the line by flushing or blowing out to remove all foreign matter. Check carefully for leaks, especially around the valve packing and flange connections. Tighten the flange bolts if necessary. If the connection is tight but still leaking, the threads or gasket are damaged and the joint must be remade.

Valve Use and Care

Warm-Up Period. Allow the valve to warm-up gradually and then check all connections for tightness. Tighten if necessary.

Test Operation. Operate the valve a few times to flush it thoroughly. When opening or closing the valve do not use extreme force. If the valve operates with difficulty, some internal parts may be damaged and the valve should be disassembled and repaired.

Packing. Check the packing frequently and tighten the gland if required but do not overtighten as this will cause binding of the stem, make operation difficult, and shorten packing life. On larger valves where flanged type glands are used, tighten bolts uniformly to prevent cocking and unequal pressure on the packing. When the valve is in the wide open position, a few drops of light oil applied to the stem improves sealing qualities of the packing and makes stem operation easier.

Inspection. Visually inspect the valves frequently and repair small leaks immediately. Lift out bonnet and disk assembly without removing from the line and make the necessary repairs. This practice will prolong valve life and prevent shutdowns.

Repair. When disassembling the valve, check manufacturer's literature for instructions and correct parts identification. Give complete valve identification when ordering replacement parts.

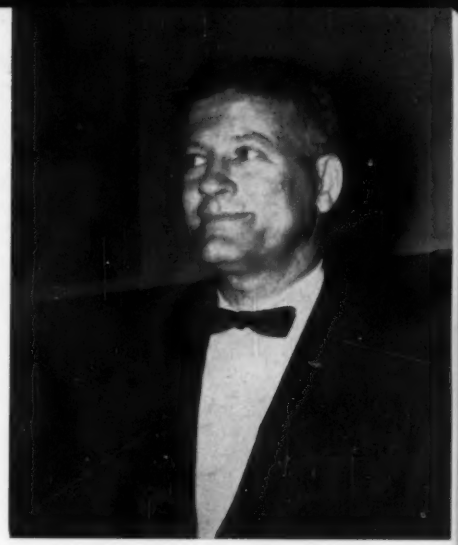
When placed in a bench vise, the jaws should engage the valve ends, not the body. Gripping the body may distort the seats.

Lap valve in accordance with manufacturer's instructions. Carefully remove lapping compound from seating faces before reassembly.

*"Recommended Piping Practice" published by The Lunkenheimer Co.

South Carolina mill men discussed slashing, weaving, and cloth room practices at Clemson

D. H. Roberts of Lydia Cotton Mills, chairman of the division, presided.



Louis Burkes of Calhoun Mills was the discussion leader.

How long should check straps last?

Staff report

SEVERAL HUNDRED members of the South Carolina Division of the Southern Textile Association met at Clemson College, S. C. recently and held open discussions about mill practices.

A panel on weaving, slashing, and cloth room practices was led by Louis Burkes of Calhoun Mills, and weave room experiences were covered first on the program.

Check Strap Life. The life of Paige check straps on X2 looms was undetermined because of insufficient experience. One mill had looms operating at 184 ppm for 18 months without any trouble with the straps while running molded-type shuttles. Several mills reported using the straps with molded-type shuttles with good results but undetermined life. In one instance 500 XD looms had been running for 23 months with Paige check straps with good results.

Loom fixers' opinions of the Paige strap were good in all reports, which indicated longer operating life, longer picker stick life, and lower cost operation.

Speed of E Model 40" looms was quoted at 175 ppm on 175 motorized looms on fine combed goods and 165 ppm on several hundred looms on unspecified goods.

One mill had installed heavy pick shafts on looms to obtain longer wear but did not increase loom speed. Another mill reported trying chrome plated right hand front box plates but no improvement was effected in the trial.

Limited experience was noted on link-type parallels. One mill had 100 looms equipped, and supply cost was about half of the regular type. Records on seconds were not available. It is necessary to set the center fork high to avoid shuttle wear, according to the speaker. A light weight lug strap was used, and life of the parallel was unknown.

Life of conventional-type check straps on 40" E Model looms is about three to six months at 175 ppm, according to those with experience. Life of picker sticks ranged from six to eight months among those reporting.

The life of Drawtex and Drawright-type heddles and frames had not been determined by mills using this type of equipment with stationary tying-in machines. Up to six years use showed no wear in one mill.

Most of those running X2 looms use check straps ½" thick, the discussion indicated, and these straps were used in conjunction with True Mold-type shuttles.

Experience with fabric-type check straps was satisfactory though limited.

Cloth Folding. A discussion on cloth room practices revealed that variation in cloth folds at the folder may be corrected by keeping the folder in good mechanical condition, plumb, square, and level, and not operating at excessive speed. Slack selvages may cause variation in cloth folds too.

Controlled humidity and temperature in the cloth room ranged from 68-74% rh at 78-80 F, with refrigeration.

Slashing Practices. Two-ply selvages are dried on the slasher by running through the squeeze roll only and slowing the speed to take care of extra moisture. Making an extra pass through hot air chamber helps on air-dry-type slashers. Adding contact rolls to keep yarn in contact with larger portion of cylinders helps on can-type slashers.

Speeds on hot air slashers varied from 50-100 ypm, depending on the number of ends and the yarn. Speeds on 10-can slashers varied from 55-108 ypm, depending upon number of ends and counts. Speeds on a 9-can slasher varied from 55-120 ypm with highest temperature held at the middle three cylinders; 31s yarn was run at 120 ypm.

Hardness of rubber squeeze rolls on slashers was desired at 50-55 on combed work in one mill. Another mill on print cloth pre-

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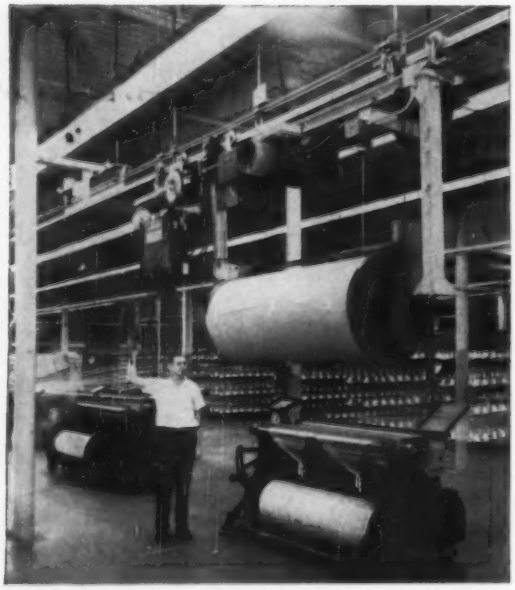

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ferred a 45 durometer reading on the rolls while cold and with the set out.

The preferred roll buffing interval for slasher rolls was about six months, reports indicated. A 550-pound squeeze roll with about 1" of rubber on the surface was preferred.

Size temperature at the size box was maintained at 202-207 F among mills reporting on this subject, and temperature maintained at the storage kettle ranged from 201-205 F.

Pressure on dresser roll on Griffin size box was maintained at from 8-10 pounds on the dial indicator and this amounts to 78-100 pounds weight, the speakers said.

Use a system in determining executive pay

Abstract*

■ A POORLY CONCEIVED, poorly administered, poorly evaluated executive salary program cannot fail to be a dragging anchor for a company that wants to sail ahead. The task is not simply to put together a plan—the moment anyone sets compensation for a subordinate, some kind of a system is operating within the firm even though it may be one based on hunch and hope. The real goal is to create a fair, workable framework within which the specific decisions about individual salaries can be made.

The process of such policy making can be divided into setting patterns, establishing salary structures, and attaching actual price tags to people and jobs; and the first question that frequently comes up in connection with the pattern is that of base pay versus bonuses, deferred compensation, and fringe benefits. Generally speaking, it is wise to first set up a solid base for the organization as a whole, then add the increased payments. In this way, incentive pay can be dealt with separately after base pay has been firmed up.

A simple device is to take the wages of the lowest paid hourly employee as "x" and hike all pay as multiples of this (pay the group leader 1.2x, the foreman 1.4x, etc.). Actually there are weaknesses to this scheme, but it has its simplicity to recommend it.

For one thing it is too closely tied in with titles, which often are not trustworthy clues to the importance of the work being done by the individual. Too, it ties executive compensation with union negotiations. Also, it fails to point out that the manager's job is not only higher than a machinist's, but is *different*.

Another mechanistic approach is to check the statistics to see what everyone else is doing. But one can hardly follow old Joe's lead and pay his executive vice-president half of what he himself is earning—here again is that old snare of titles (what does old Joe's executive vice-president do and how important is he to the profits of the company?).

There are other booby traps in following the paths of other firms: (1) the system may not be working properly; (2) a plan that succeeds may not be applicable to a totally different company; (3) surveys may only show where others are now or have been; they may not point to nor make provisions for future changes; (4) surveys based on industry averages may mask important differences between companies; and (5) often surveys are based on a few top jobs. Unfortunately, some companies continue to accept surveys as the answer to their particular situation.

The most complex approach, but the most realistic, is the evaluation and rating of management jobs in terms of their contributions to the company, and it cannot be bypassed by the use of a survey or other automatic device.

Somebody has to go through the job of making distinctions between the management people in this respect, so judgment had better be aided by some kind of explicit, systematic approach. In doing so remember: (1) no rating will be flawless; (2) factors considered must be distinguishable, sharply defined; (3) the factors should be present in all management jobs; (4) management personnel may profitably be brought into the evaluation process of their own jobs; (5) the factors should be measurable and generally understood; and (6) they ought to be drawn up so as to be usable tools for differentiating one job from another.

Once the pattern has been set the salary structure itself may be considered and the grades and steps determined—these are the building blocks. Grades are groups of jobs around a rung of the management ladder; steps are differences in proficiencies in performing these jobs (this may vary as much as 70 per cent from low to high).

The third step is the process of pinning on the price tag, and survey data can be very helpful at this step. Once the top executive pay is fixed, it is relatively simple to peg the pay of the second, third, fourth man, etc., often through the use of the same survey data that helped fix the top man's pay. These may be used for determining the scales downward through the various levels of management.

Regardless of the system, the end result should: (1) be understood and considered fundamentally fair by those subject to it; (2) be based on explainable and sensible comparisons between different functions (not titles); (3) be carefully tailored to the particular company; and (4) set pay scales competitive with other firms in the field.

Once the basic salary plan has been firmed up, incentive pay demands attention. This must be tailored to the situation with the same care given base pay, considering personnel ages, tax bracket (income taxes simply must be considered), interests of particular groups, etc. But don't expect money, at any level in the company, to be the only or the best way to establish a climate within which people will strive toward excellence of performance.

*From *Executive Compensation — How Much to Whom?* published in the 1959 Series Number 3, of the "Acme Reporter," the official publication of Association of Consulting Management Engineers, Inc., 347 Madison Ave., New York 17, N. Y.

Expansion or modernization... immediate or long range...you can stay within your budget with

West Point's Step-by-step plan for better slashing

Improving slashing doesn't necessarily mean you have to throw out all old equipment and start over . . . you can start with a single unit and follow a planned program of replacements. All the components of the famous West Point Pacesetter Slasher can be purchased individually to replace units at points where obsolescence and wear are affecting production. This enables you to attain top slasher-room quality and production with a minimum of capital investment in any one year.

Call a West Point Foundry slasher specialist to help you adapt the "Step-by-Step" Plan to your program. He will show you how the individual West Point slasher components may be added to your present equipment "Step-by-Step" at the points most needed to achieve immediate improvement in efficiency, quality, or production. Thus, "Step-by-Step," you can arrive at a stage where you will profit from the full benefits of superior West Point slashing. And you can do it on a predetermined schedule — to suit your own individual budget requirements.

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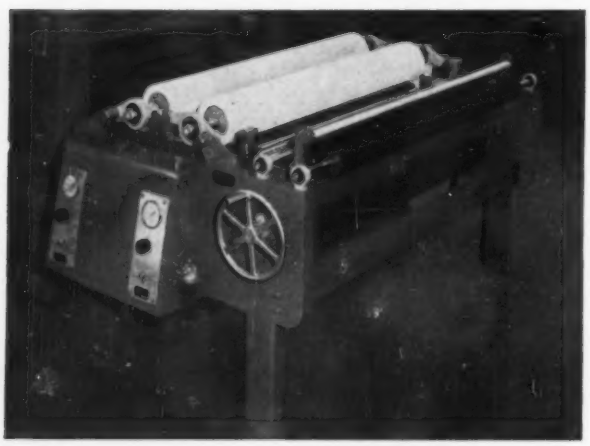
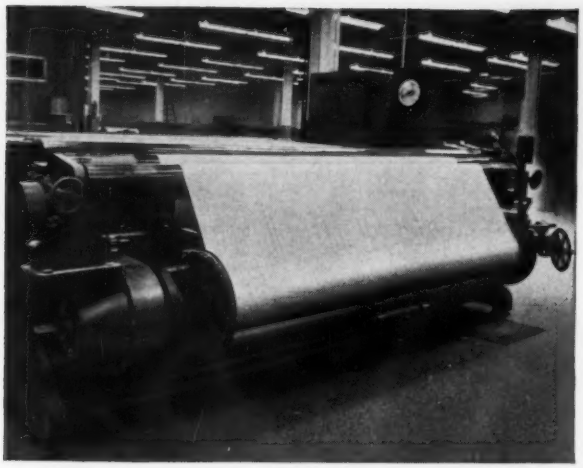
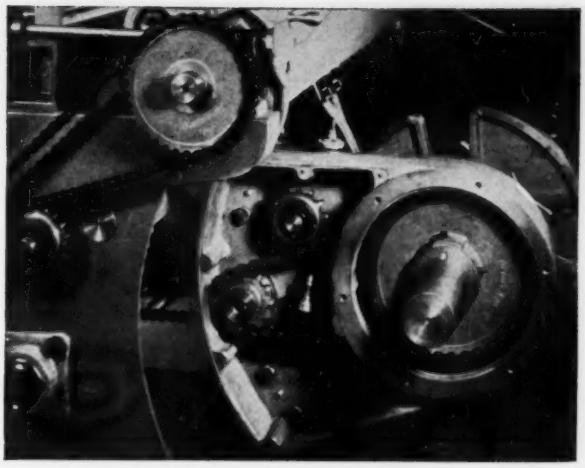


PACESETTER DRYING SECTION: The slasher with the mostest. Heaviest frame. . . 7" deep at one point . . . for today's and tomorrow's heaviest demands and highest speeds. Largest sprockets (105 teeth) . . . and the largest cylinder journals and bearings (2-11/16") . . . for longest trouble-free service life. Covered steam and condensate manifolds, neat lift-out panels for superior access to warp, clean uncluttered design.

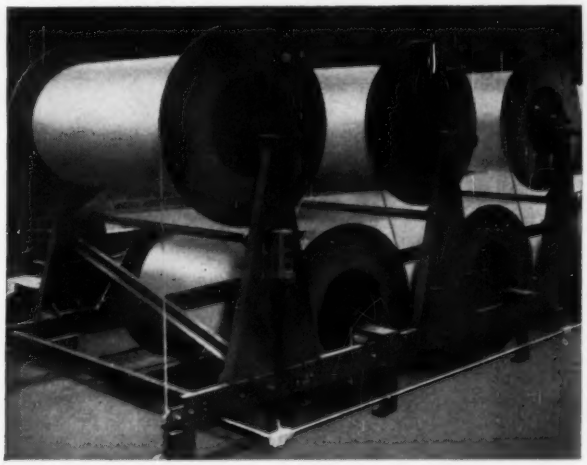


HEAD ENDS: Choice of two, either adaptable to *any* slasher drying section or size box. High Speed Single-Beam model with traversing headstock and tailstock handles wide and narrow loom beams with over 100" in variation. No long arbors projecting in or out. Simple chain and V-belt drive. Also a Double-Beam head end for light warps.

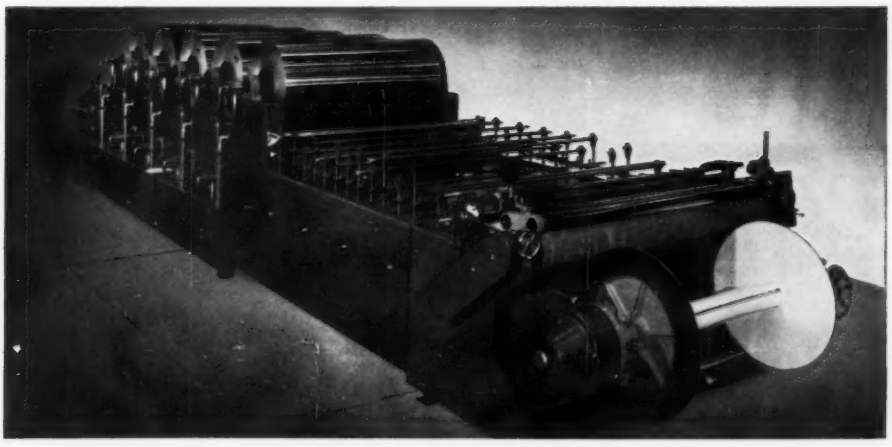


ALTERNATE INCREASING-TORQUE BEAM DRIVE: Available on either new high speed head end or double-beam head end, or can be adapted to older slasher head ends. This improved beam drive is midway between more expensive multi-motor slasher drive and earlier single-stage friction beam drives. A "Step" toward maximum economy and technical simplicity.

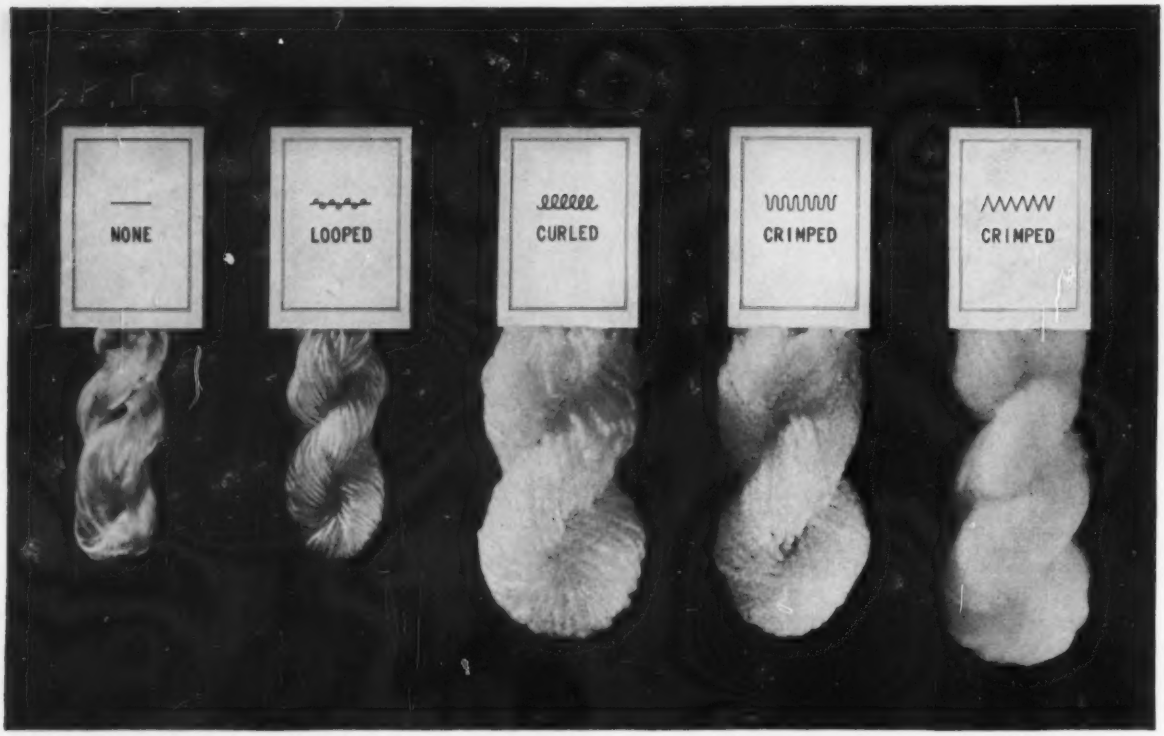
MAGAZINE CREELS: On heavy cast iron stands and large roller bearing wheels. Either side-to-side or forward-and-backward movement of one creel. Available in an Over-Under (as above) or in Equi-Tension arrangement. Magazine creels fit the "Step-by-Step" concept as they are applicable to older slashers as well as to the Pacesetter. West Point's rigid quality standards assure you of years of dependable service.



EQUI-TENSION CREELS: A "Step" toward reducing waste in uneven section beam run-outs. Higher top beam stands and ball-bearing guide rolls permit drawing warp individually from each section beam for equal weighting. Since warp never passes between flanges of section beams nearer size box, selvages cannot be rolled by misalignments. Most often used with cotton yarns of 30's or coarser. Either stationary or magazine creel.



THE PACESETTER SLASHER: a proved "Step" toward more production . . . more profitable operation. In the past three years more mills have installed West Point slashers than all other makes combined. Whether you follow the "Step-by-Step" plan or install a complete slasher . . . you'll profit more if you go with West Point's Pacesetters. Make a date now with a West Point representative for a "Step-by-Step" analysis of your slasher operation.



60 yards of Caprolan 2100-112-0-0-HB heavy yarn which has not been textured. Same weight, same yarn textured by looping. Same weight, same yarn textured by curling. Same weight, same yarn crimped by one process. Same weight, same yarn crimped by second method.

Textured filament nylon?... What a Difference Caprolan* Makes!

Take a Look at How Caprolan Responds to Four Popular Bulking Processes!

The left-hand skein is simply 60 yards of our 2100-112-0-0-HB heavy yarn which *has not* been textured by *any* method. To its right are four skeins of the same weight of the same yarn bulked by looping, curling and two methods of crimping.

These textured yarns of Caprolan tell their own story!

If you are a producer of carpets, upholstery fabrics, decorative textiles, industrial fabrics or military goods, textured filament yarns of Caprolan open a whole new world of fabric engineering and design opportunities for you. Used alone, or in combination with each other, textured yarns should hold a high priority in your future fabric plans.

When ordering textured filament nylon yarns, specify Caprolan, which has all the advantages of nylon plus a number of extra, important performance values!

For further information, technical assistance or list of sources, write us today.

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What's new in wash-wear

Cotton chemists discussed crosslinking, stabilizing cotton knits, and resin application by spraying

Staff report

MORE THAN 450 chemists and representatives from the textile and allied industries gathered in Washington on October 7th for the National Cotton Council's 8th annual Chemical Finishing Conference. Papers included studies of crosslinking cotton, stabilizing cotton knit fabrics, and a discussion of applying resin to fabric by spraying techniques.

CROSSLINKING

Reeves

Differences have been observed in wrinkle resistance of resin-treated fabrics that are conventionally padded, dried, and cured, and those finished while the fabric is swollen in alkali or mercerizing strength. The first process imparts wet and dry wrinkle resistance, while the second imparts only wet wrinkle resistance.

The Southern Regional Research Laboratory pursued this observation by making a study of cotton crosslinked at various states of swelling in order that some basic concepts might be provided about wash-and-wear fabrics. A paper, "Cotton Crosslinked at Various Degrees of Fiber Swelling," prepared by Wilson A. Reeves, Rita M. Perkins, and Leon H. Chance, reported on experimental results and gave some theoretical interpretations of the observed facts.

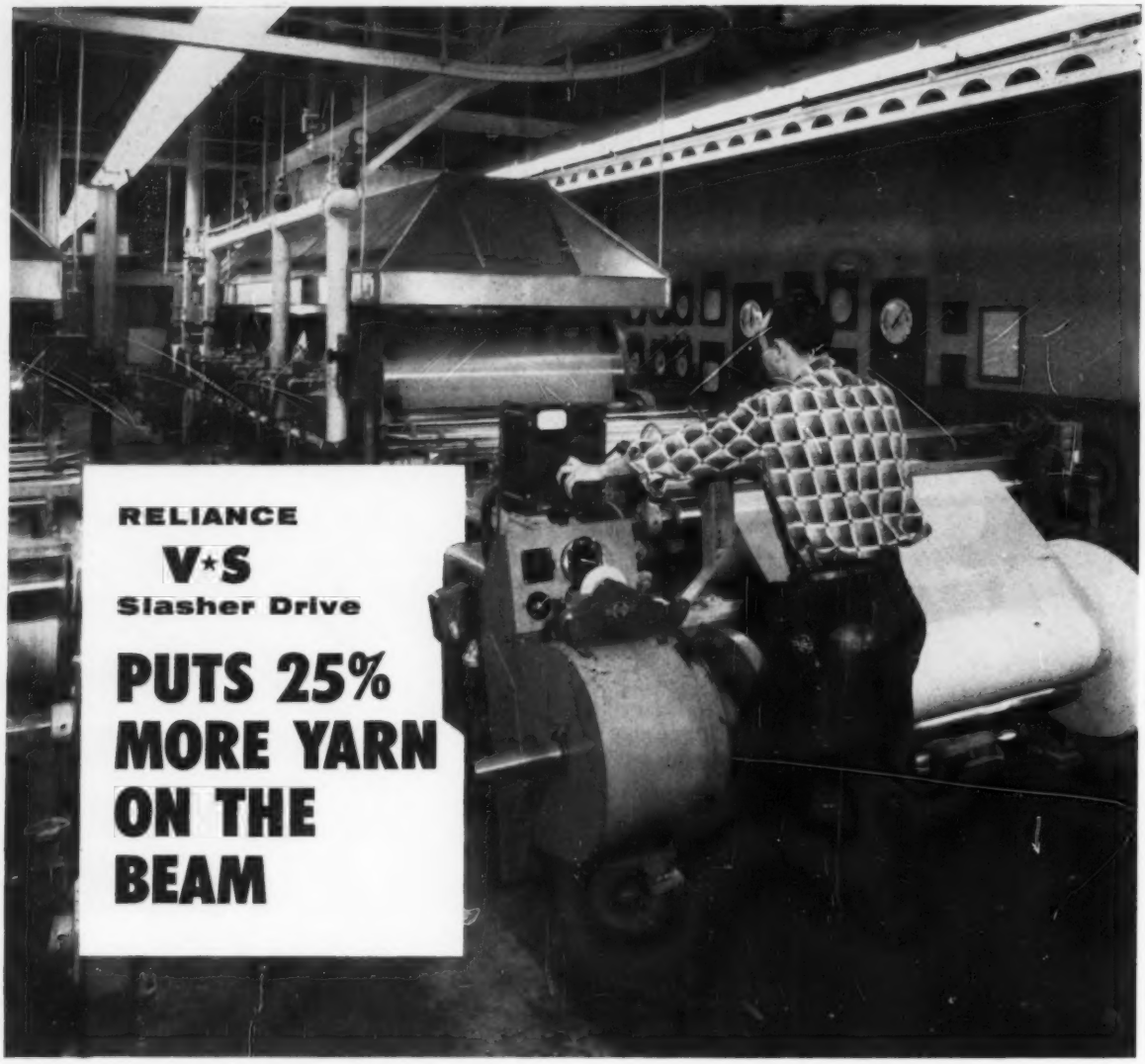
Formaldehyde was selected as the crosslinking agent because it can be reacted with cellulose by the dry-cure process and in aqueous solution as well. Besides, the crosslink formed with formaldehyde is a simple methylene bridge. By progressively replacing larger amounts of water in an aqueous system with a water-miscible, non-swelling liquid, formaldehyde could be reacted with cotton under varying degrees of fiber swelling. Formaldehyde also has the advantage in such a study that the methylene bridge has little effect on the gross weight of the textile, an important factor in density studies.

Dry and Wet Densities. The density of a cotton fiber, weight per cc, is dependent upon the amount of crystalline and amorphous cellulose. In the studies, determinations made on fabric samples freed of gas and moisture were termed dry densities; while wet densities were obtained by measuring the specific volume of fabric that had been swollen in water. Dry density is related to

Dry and Wet Densities of Wrinkle-Resistant Cotton Fabrics

Finishing Agent	Catalyst Used	Reaction Conditions	Apparent Weight Add-On %	WRA[1] Dry	WRA[1] Wet	Density Dry	Density Wet
DMEU	H-7	Dry, cure	1.8	260	236	1.536	1.472
DMEU	H-7	Dry, cure	5.3	287	301	1.531	1.522
APO	None	Dry, cure	1.7	191	202	1.536	1.480
APO	None	Dry, cure	5.3	228	249	1.524	1.512
APO	$Zn(BF_4)_2$	Dry, cure	1.6	190	222	1.542	1.477
APO	$Zn(BF_4)_2$	Dry, cure	5.3	242	257	1.536	1.506
MF	H-7	Dry, cure	2.9	223	222	1.544	1.477
MF	H-7	Dry, cure	6.9	275	264	1.542	1.532
FAC-MF	Formic acid	Dry, cure	2.1	216	216	1.542	1.480
FAC-MF	Formic acid	Dry, cure	5.5	263	248	1.536	1.532
Triazone	H-7	Dry, cure	3.5	266	231	1.532	1.494
Triazone	H-7	Dry, cure	6.5	272	280	1.532	1.502
Epoxide	$Zn(BF_4)_2$	Dry, cure	2.6	195	218	1.534	1.486
Epoxide	$Zn(BF_4)_2$	Dry, cure	7.5	263	258	1.533	1.513
HCHO	$MgCl_2+AlCl_3$	Dry, cure	1.0	284	272	1.532	1.506
HCHO	HCl	Solution	0.4	182	302	1.525	1.460
GDC	NaOH	Solution	1.0	226	255	1.524	1.462
Untreated control	—	—	—	200	194	1.544	1.505
Mercerized fabric	—	—	—	192	217	1.534	1.476

[1]Wrinkle recovery angle



RELIANCE V★S Slasher Drives give you exacting tension control. Yarn tension is uniform from empty to full beam.

Uniform tension adds to weave room efficiency and also puts more yarn on each beam. A leading textile mill finds it can put 25% more fine count cottons on a beam with their new Reliance powered slasher.

Tension is accurately maintained through the whole speed range of the slasher, 4 to 140 ypm. Ends are handled gently with cushion starting and stopping. Put more productivity into *your* sizing operation by specifying Reliance as your next slasher drive.

For more information on Reliance V★S Slasher Drives, contact your local Reliance Representative or write today for Bulletin D-2506. L-1509

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the degree of openness or compactness of the dry fiber; wet density may be considered a measure of the swellability of a fiber.

The table [on page 109] lists wet and dry density determinations together with dry and wet wrinkle recoveries of fabrics treated with various resins and crosslinked with formaldehyde and glycerol-dichlorohydrin (GDC).

Results show that in all cases dry density decreased as finish add-on increased. Crosslinking in water or in alkali produced somewhat lower dry densities. All the dry densities show that crosslinking fixed the dry fiber in a more open or less dense condition than exists in natural cotton fiber. An increase in add-on caused an increase in wet density in each case.

At lower add-on wet density is quite low, indicating that the wet fibers have the ability to swell in water; the ability to swell being greater than in untreated fabric. Both wet and dry density values also indicate that the state of fiber swelling at the time of crosslinking influences the final state of openness existing in the crosslinked fiber.

In subsequent experimentation, crosslinking of cotton with formaldehyde was carried out under conditions ranging from anhydrous to completely aqueous systems. The cotton was crosslinked with formaldehyde, using HCl as catalyst in systems with varying amounts of water and acetic acid. The aqueous systems provided considerable swelling of the cotton fiber before and during crosslinking, while the systems containing large amounts of acetic acid provided relatively little swelling of the fibers.

The fabrics were then studied with respect to wet and dry wrinkle resistance, wet and dry density, dyeability with direct dye, moisture regain, water of imbibition, and wash-and-wear properties. The state of fiber swelling at the time of crosslinking had a tremendous influence on fiber structure and on the resulting physical properties of fabrics made from the fibers. A high degree of fiber swelling resulted in fabric with wet but little or no dry wrinkle resistance, and good drip-dry properties. Relatively little swelling, on the other hand, resulted in fabric with good wet and dry wrinkle resistance and also good wash-and-wear properties when either drip dried, line dried, or tumble dried.

STABILIZING COTTON KNITS

Irvine

In treating cotton knits with chemical stabilizers, three important factors are modified: dimensional control, appearance, and wearing qualities. In a paper, "Performance Characteristics of Chemically Stabilized Cotton Knit Goods," J. B. Irvine, of Quaker Chemical Products Corp., presented data showing the extent to which these factors, and those of strength and abrasion, are modified.

In laboratory treatments, which yielded reproducible results, samples of a plain knit cotton T-shirt fabric and an 80 x 80 cotton sheeting were treated with triazone, triazine, UF, DMEU, and acetal resin types at a solids application range of from 1% (less than is necessary for stabilization) to 12% (more than is necessary). The results with respect to the important factors mentioned above are summarized as follows.

Dimensional Control. Untreated cotton knit samples showed a shrinkage in length of 20%—shrinkage data in the course-wise direction were not shown, although determined. In general, chemical stabilization with the five resins reduced shrinkage by about one-half. Even after five washings, this reduction was maintained.

Through wash-test data obtained after one washing and five washings, the limits of effectiveness in chemical treatment were established, in which wash-wear ratings, abrasion resistance, strength loss, appearance, and shrinkage control were taken into account. The optimum processing zone, at which all these factors are at their most satisfactory levels, lies between a 2% minimum and 8% maximum chemical stabilizer content. Below 2%, shrinkage control results will vary widely.

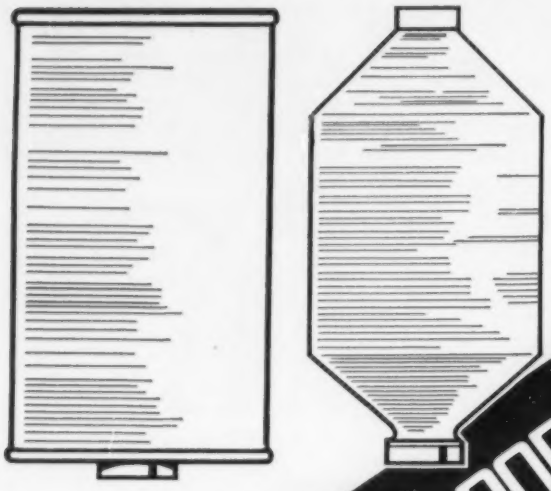
Application of chemical stabilizers to knit goods improves wash-wear ratings appreciably. Improvements in wash-wear ratings (measured by the Monsanto standards) are obtained even with less than 2% chemical stabilizer content. After five washes, the DMEU treated fabric dropped slightly in rating but all others retained ratings between 4 and 5. Comparison of these ratings with those obtained on the cotton sheeting shows that good wash-wear ratings are more easily obtained on knit goods.

To show the correlation between wash-wear ratings and dimensional control, obtained at various concentrations, shrinkage percentages were plotted with corresponding wash-wear ratings. Twenty of the twenty-five treatments, which produced shrinkage below 10%, had ratings of 5. In the low shrinkage area (between 0-10%) there were no ratings of 3. There are some ratings of 3 and only sixteen ratings of 5 among the treatments which produced shrinkage results in the 10-20% shrinkage area.

It may be assumed that good wash-wear ratings can be obtained without accompanying good shrinkage control. It may also be concluded that good shrinkage control will nearly always be accompanied by good wash-wear ratings.

Chemical stabilization also reduces the tendency of fabrics to pill after laundering, the surface of the fabric remaining smooth and fairly free of loose fibers.

Mr. Irvine then discussed the method and results of measuring crease resistance of knit fabrics. The testing method used, modification of the Monsanto testing procedure, gave reproducible results. To demonstrate the correlation between crease resistance and wash-wear ratings, a population chart was prepared, in which wash-wear rating at each crease recovery rating was listed. In the high crease recovery area, twenty-two of twenty-five treatments produced ratings of 5. The remaining three were 4-plus ratings. In the low crease recovery area, there were four ratings of 3, seven ratings of 4, and fourteen ratings



AKRON SPOBBIN* BREAKS THE PACKAGE BARRIER

Already Acclaimed one of the Greatest Strides in the History of All Spun Yarn Manufacturing

Akron Spool and Manufacturing Co. has developed an inexpensive process to convert your present roving bobbins to AXIALLY TRUE SPOBBINS which will give you bigger packages and better running work at lower cost.

SPOBBINS Give You All of these Advantages Immediately

Bigger Roving Packages by 50-100%

SPOBBINS permit ⅜" more length of full lay between the flanges. Flange diameters can be increased to give wider packages for the full length.

Improved Quality

Reduced handling and longer runs between roving doffs, less creeling and virtual elimination of break-backs in spinning due to sloughing, render a pronounced upgrading of yarn quality.

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By decreasing downtime, piecing-up time, and greatly increasing running time, efficiency gets an impressive boost on roving and spinning frames.

Costs Slashed

Reduced unit cost from higher efficiency, reduced labor cost for doffing and creeling, practically no roving waste due to sloughing, lower bobbin inventory and replacement cost, all add up to tremendous savings.

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Akron SPOBBINS with "Sleeve-Lok"* construction and hard bone grade concentric fiber flanges assure longer service and protect the roving and base from damage. They also provide uniform unwinding from spinning skewers or hangers.

The SPOBBIN was developed in close cooperation with Ideal Machine Shops and they are fully qualified to make the necessary conversions of your roving frames.

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Only IDEAL gives you Fullest Value from your Spobbins*

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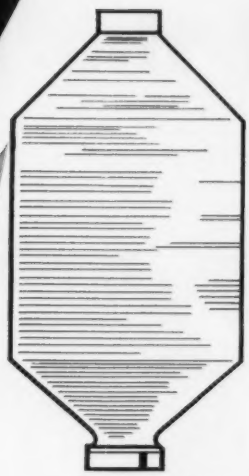
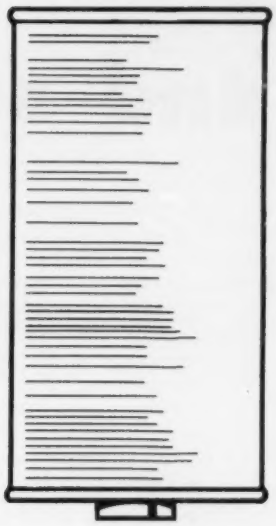


11" x 5½" bobbin



12" x 6" Spobbin

Ideal engineers have worked closely with Akron Spool & Mfg. Co. to further increase Spobbin capacity and efficiency. Akron Spobbins plus Ideal Roving Frame Conversions produce better running work and permit both roving and spinning frames to run two to three times as long without doffing or recreeling.

Example. Exhaustive tests in a leading mill have shown that a 11" x 5½", 32 oz. bobbin converted to a 12" x 6" Spobbin—plus Ideal's conversion—increases capacity to 67 oz. Conversion of this bobbin to 14" x 7" Spobbin is also practical, thereby increasing overall capacity tremendously.

Ideal's Flyer Conversion Includes spreading, lengthening, squaring and bracing shoulders to accommodate Spobbins and minimize ballooning at high speeds, plus Ideal Drop Pressers to produce a firmer wind.

Ideal Adjustable Spindle Steps These regulate height of each flyer relative to its bolster regardless of wear or inaccuracies in spindle length, steps, or bobbin gear. These steps can be applied to ANY roving frame even where Spobbins are not used.

Ideal Adjustable Delayed Action Clutch** (Shown at left) This produces a firm even lay of the roving over the entire space between Spobbin heads and prevents runovers, tangling, and ends down at the roving frame. It also prevents breakbacks, due to sloughing, at spinning.

Plus Ideal's standard reconditioning or replacing of spindles, bolsters, and flyers if necessary.

The Cost? An Ideal Spobbin Conversion will pay for itself in a few months. Let us quote you.

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**Pat. Applied For

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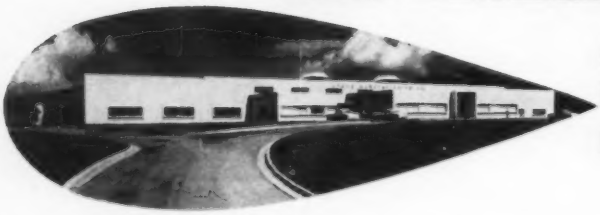
Ideal Machine Shops, Inc., Bessemer City, N.C.

End of the Line for *Lint*

Bank of Auto-AIRMATS on one of the four air conditioning systems (totalling 138,000 cfm) serving the Stone plant. Filters installed overhead to conserve floor space.

Air conditioning system designed by DEPARX STIMSON, Winston-Salem, N. C.; installed by BUENSOD-STACEY, INC., Charlotte, N. C.



Auto-AIRMAT Filters Assure Lint-Free Air For Stone Manufacturing Company

The "Creators of Stone's Wear Apparel" made sure that lint in recirculated air would never hamper production of their quality line of petticoats and children's play clothes. They equipped their Greenville, South Carolina plant with AAF Auto-AIRMAT filters —the *only* filters designed to remove lint fibres from the air and clean themselves, at the same time!

The AIRMAT media, installed in roll form at top of unit, becomes a moving filter curtain that is rerolled at bottom with its lint load. Clean media is introduced automatically, and the lint is wrapped up in the roll for easy disposal. Get all the facts about the Auto-AIRMAT. Call your local AAF representative, or write direct for Bulletin 234. Address: Mr. Robert Moore, American Air Filter Company, Inc., 275 Central Avenue, Louisville, Kentucky.

AAF **American Air Filter**

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of 5. This indicates that high crease resistance always yields good wash-wear ratings but that low crease resistance does not always yield low wash-wear ratings.

Wearing Qualities. In the optimum processing zone (between 2-8% chemical stabilizer content) strength losses vary widely for the various chemical types. The bursting strength in pounds, used to express tensile strength, decreases of course with increasing concentration of chemical stabilizer. At a 5% chemical stabilizer content, for example, the following approximate reductions in bursting strength were observed for the five resin types:

Acetal—From 51 lb at 1% to 42 lb at 5%
Triazine—From 46 lb at 1% to 31 lb at 5%
Triazone—From 44 lb at 1% to 30 lb at 5%
DMEU—From 40 lb at 1% to 30 lb at 5%
UF—From 38 lb at 1% to 28 lb at 5%

With respect to abrasion losses of fabrics treated at increasing concentrations (evaluated in the AATCC Accelerotor) the following were observed for the resin types: Per cent weight losses were highest with UF, DMEU, and triazone (in the general range of 18% at 4% concentration); lower for triazine (about 6% at 4% concentration); and lowest for acetal (about 3% at 4% concentration). However, high percentage weight loss did not indicate poor wearing qualities, as was demonstrated by photographs of abraded fabrics which showed no signs of wearing through.

In concluding, Mr. Irvine pointed out that beneficial properties are obtained through proper chemical stabilization, and that losses in strength and abrasion do not impair fabric performance.

RESIN APPLICATION: BY IMMERSION-PADDING OR BY SPRAYING?

Rath

Is it possible to squeeze out the entire resin liquid present between the fibers and retain only the liquid which has penetrated the interior of the fibers? This question formed the basis of an investigation, results of which were presented in a paper, "The Mechanism of Resin Deposition in Cotton," by H. Rath of the German Textile Research Institute.

The liquid absorbing capacity of a nonmercerized cotton fabric, after equilibrium has been established, is approximately 30%. Thus at a wet pick-up of 100% approximately 30% of the precondensate will be present within the fibers, while 70% will be present in the capillaries between fibers and between yarns. The liquid absorbing capacity of fibers cannot be increased by pressure. The concentration of precondensate within fibers can be increased only by diffusion in the drying process.

Even if wet pick-up is considerably below 100%, it is impossible to remove the resin liquid located between fibers since the fabric after squeezing is highly absorbent and will re-absorb any available liquid into the capillaries between the fibers. Thus, the amount of liquid that can be removed by squeezing under pressure is rather limited.

On the other hand, if the assumption is made that resin deposition is controlled by diffusion, processes, a concentration gradient exists between the precondensate solution (initially only in the capillaries between the fibers) and the fiber swelling water. This system tends to establish an equilibrium. Accordingly, as the water evaporates in drying, the precondensate concentration in the capillaries between fibers increases and the precondensate diffuses into the fiber interior. Simultaneously, water is expelled to the outside. In this manner, it is possible to deposit a major portion of the precondensate in the fiber interior during drying.

These processes cannot be influenced by pressure. In fact, crease resistance can be obtained without squeezing provided that the rate of precondensate concentration is not unduly high. The precondensate can thus be deposited in the fiber interior with little or nothing remaining in the capillaries between fibers.

Squeezing, however, has obvious functions, as in controlling quantity of resin deposition. To determine the need for pressure, fabrics were impregnated and squeezed to a wet pick-up of resin of 80%, and in separate tests, impregnated without squeezing to a wet pick-up 180%. To prevent migration, the fabrics were dried horizontally. Results showed that immersion without pressure-squeezing produced good crease resistance, equal to that obtained by squeezing under pressure.

The assumption that deposition of precondensate during drying is controlled by the concentration gradient is verified when finishing is carried out under conditions preventing the formation of this concentration gradient. If squeezing follows impregnation, and curing takes place in an autoclave without previous drying, at 266 F, a normal diffusion of the precondensate into the fiber interior is impossible. In this case the flow of precondensate is from the inside to the outside, the resin depositing to a large extent on the fiber surfaces.

Changing padding speeds, where pressure is used, will result in changing wet pick-up. Less precondensate is removed with increase in speed, hence the quantity of resin deposited is increased and the crease recovery angle is in turn increased.

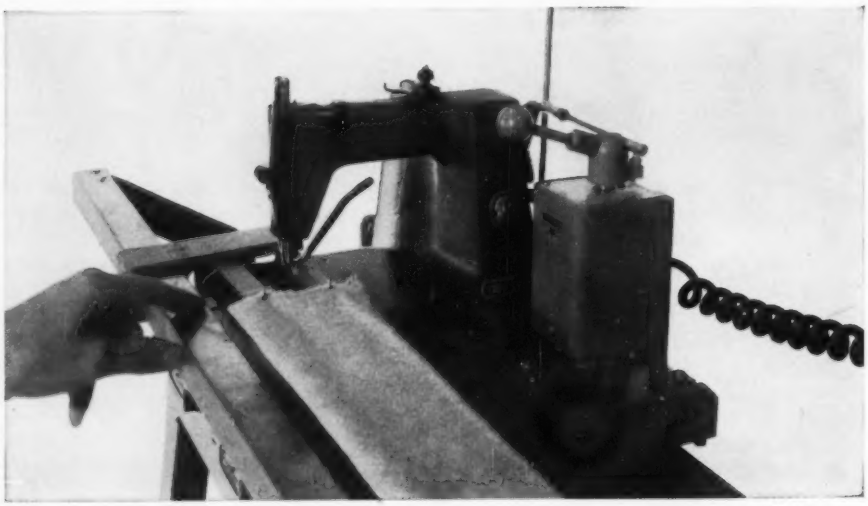
In view of the foregoing, it is expected that crease resistance can be imparted by spraying, which would make it possible to apply a precondensate of appreciable concentration with savings in drying time and costs. Accordingly, tests were made in which fabrics were sprayed at increasing precondensate concentrations, followed by drying and curing. Optimum crease recovery angles were obtained at a precondensate concentration of 250-300 grams per liter. At higher concentrations, crease recovery angles on the sprayed side of the fabric were higher. The condensate was sprayed onto the fabric under uniform pressure with reproduci-

Curtis & Marble's
LC RAILWAY SEWING MACHINES

now featuring a chaining-on device which eliminates much of the trouble with turned selvages during subsequent finishing operations.

These high speed machines are furnished for maximum cloth widths of: 56", 64", 72", 80", 90", 100", 110" and 120", and supplied as a Way with Sewing Machine head to be mounted on a scray, etc., or as a complete moveable unit with legs and locking casters. Either Singer (chain stitch) or Merrow (butted seam) heads available.

New bulletin No. 349A describing the LC on request.



Starting the chaining-on before needle reaches selvages.

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ble results attained.

To determine location and distribution of resin in sprayed and conventionally padded fabrics, tests were made. Fabric samples were treated by both methods: by spraying to a wet pickup of 55%, and by padding to a wet pick-up of approximately 80%. A dyestuff, Kiton Pure Blue V, was added to the immersion bath in each case. Microscopic observation of fiber cross sections showed no essential differences in resin distribution and deposition between the two methods.

Results of abrasion tests showed no substantial differences among the samples.

Are Spraying Methods Practicable? Although advantages are gained by spraying, some disadvantages come into evidence. When fabrics of heavier weight (10.4 to 12.6 ounces per square yard) are sprayed, it is difficult to achieve results comparable to padding. Furthermore, uniformity of spraying becomes a problem when fabrics wider than the spraying range of the nozzle are run. Rotary nozzles or nozzles with traverse motion are not satisfactory.

A possible solution lies in the use of enclosed spraying or atomizing chambers. The fabric is first pre-steamed to increase absorption, then passed into the spraying chamber, then given an air passage to insure uniform distribution of precondensate, then dried and cured.

In spraying, however, two opposing tendencies prevail. While a minimum application of liquid is desirable to minimize evaporation, a limitation is placed on concentration of precondensate solutions. Concentration in the range of 300-500 grams per liter, the equivalent of about 60% solids content, is too viscous for spraying. Besides, the concentrated solutions are not evenly distributed in and on the fabric, adversely affecting crease recovery angles. Concentration must be held to 300 gpl.

One-bath systems for dyeing Zefran-wool piece goods developed

■ ONE-BATH systems for union dyeing blends of Zefran and wool have been announced by The Dow Chemical Company's textile fibers department.

This new development makes possible union dyeing woolen type piece goods of Zefran and wool with temperatures, dyeing times, and dyestuffs common to woolen dyehouses and providing a broad spectrum of shades with fastness properties comparable to similarly dyed 100% wool fabrics.

The relative ease with which woolen type fabrics of Zefran and wool can be dyed is predicated on two key points:

(1) That neutral premetalized colors in light shades exhibit preferential affinity for the Zefran and leave the wool portion of the blend white or near white; and

(2) That certain selected milling acid colors exhibit preferential affinity for wool.

By combining colors from these two classes the dyer is equipped with a "dual control" system, according to Dow's textile development group; therefore, he can readily make shading additions to either one or both fibers—ideal conditions for union dyeing.

Where heavier shades are required, the same technique is employed using the same classes of dyestuffs. However, as the depth of shade increases with neutral premetalized colors on Zefran, the wool also dyes to a light shade. The wool is then brought to shade with milling acid colors.

Brighter shades which cannot be achieved with true neutral premetalized colors require the use of direct colors on Zefran. Colors generally used are those commonly referred to as "wool white" dyestuffs which dye Zefran with minimum staining of the wool component. The wool is brought to shade with milling acid colors as above. This is comparable to techniques for dyeing wool/cellulosic blends where close control of dyeing conditions is required to achieve acceptable dyeings.

Rapid bleaching process for cotton hosiery

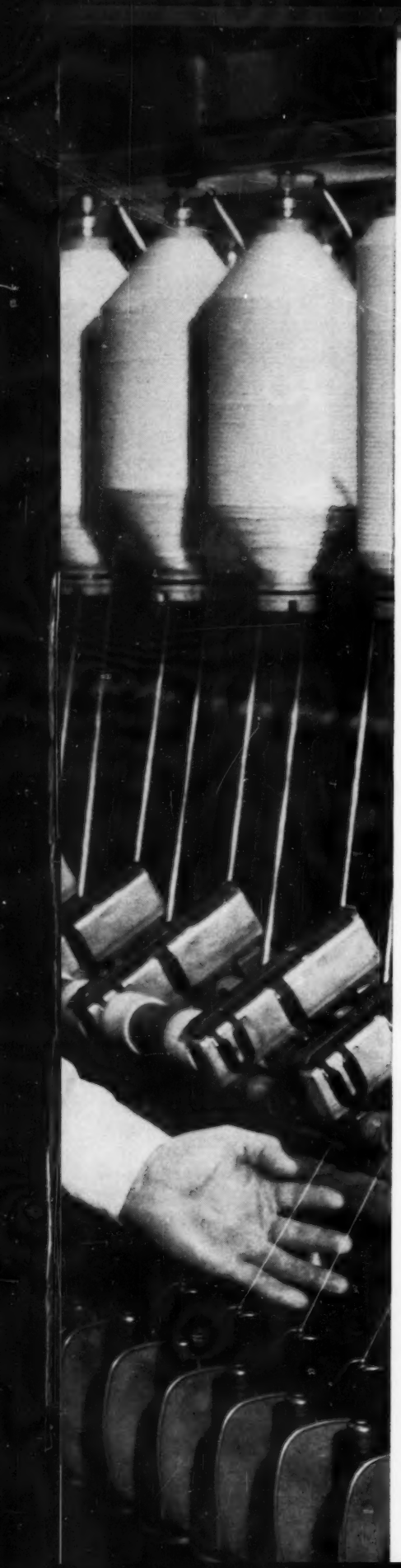
■ DEVELOPMENT of a bleaching process for cotton hosiery that offers substantial economies in bleaching costs and greater speed of operation has been announced by Columbia-Southern Chemical Corporation's market research and development department.

Hydrogen peroxide and other additives combined with the novel use of existing rotary type hosiery dye machinery produces excellent quality and high whiteness, greater ease of handling materials, and eliminates the possibility of yellowing due to chlorine retention, the firm said.

It is reported that performance to date of the new bleaching technique confirms the economic advantages achieved with the greater throughput and lower costs due to simplicity and speed of operation. The rapid bleaching process was developed in Columbia-Southern's textile laboratory at Barberton, Ohio, while the pilot plant development was completed in the School of Textiles at Clemson (S. C.) College.

Ask for the 1959 Index to "Textile Industries"

All articles which appeared in "Textile Industries" in 1959 are indexed by subject to permit quick location of them. Write to The Editors, "Textile Industries," 806 Peachtree St., N. E., Atlanta 8, Ga., or use the handy postage-free card on page 167 for requesting your copy. Save each issue of TI. Many articles are of lasting value.



Mr. A. M. Federline, Overseer of Spinning at Startex Mills, Startex, S. C., discusses yarn quality with Armstrong representative Paul Rosser.

Your Armstrong man can help you select the right Accotex Cot for top production of quality yarns

As every mill man knows, each fiber and blend presents different problems in spinning—problems that can vary on different drafting systems. As a result, there can be no one cot material that will work equally well on every combination of frame and fiber. That makes the selection of the right cot important to your getting maximum production of quality yarn.

The training and wide experience of your Armstrong man can be helpful in picking the right spinning cot for your specific mill conditions. He can make dependable recommendations based on the wide range of materials available in the Accotex line.

For example, if your lap-up rate is increasing, new Accotex anti-static cots may give you the help you need. Where eyebrowing is a problem on spinning and roving frames with flat clearers, a switch to Accotex NC-762 Cots will help to eliminate it.

On some drafting systems, a softer cot material has been found to improve break strength and reduce yarn irregularities. Accotex Cots made of softer compounds are available to meet this need.

On any frame . . . with any fiber or blend . . . Accotex Cots will help you get maximum production of quality yarn. Your Armstrong man will be glad to help you select the right roll cover for best performance on your frames. Call him or write to Armstrong Cork Company, Industrial Division, 6512 Ivy Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX COTS

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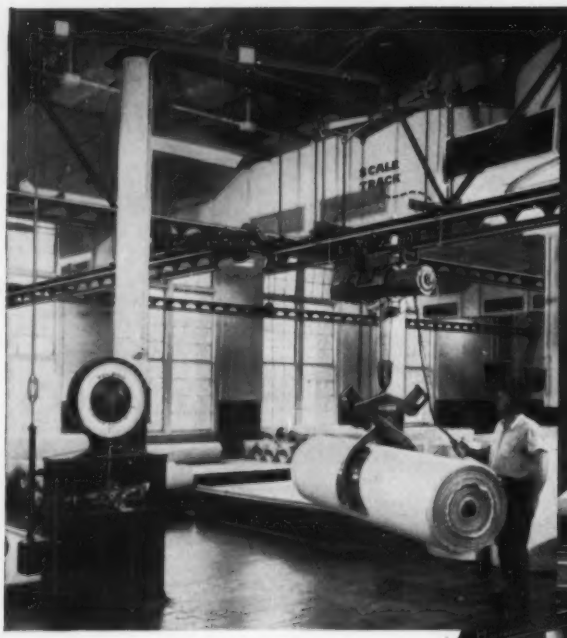

Faster, Easier Handling in CLOTH ROOMS

Scale Enables Quick Weighing Enroute

HEAVY, unwieldy rolls of cloth are easily handled to and from storage and inspection machines via the overhead Cleveland Tramrail route.

The smooth rolling carriers and transfer bridges are easily pushed by hand. The heavy lifting is done with electric hoists. The bridges interlock together, permitting a carrier to deliver its load directly to any point served by one bridge to any point served by another.

Along the route a track scale can be provided for quickly weighing the rolls while supported by the carriers.

Hand-propelled and motor-driven equipment, as well as automatic dispatch Cleveland Tramrail systems are now serving cloth rooms of many mills. We invite your inquiry for textile materials handling problems of any kind.

The use of Cleveland Tramrail has grown rapidly and become widespread in the Textile Industry. In textile mills of all kinds and sizes it is lifting and conveying cotton, wool, rayon, nylon and silk in every stage of preparation wherever the weight is more than one man can handle. Cleveland Tramrail equipment is easy to use and does not require skilled nor experienced operators.

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DON'T MISS THE BOAT!

March 3 is just around the corner...
will you be ready to comply with the
Textile Fiber Products Identification Act..?

TEN BILLION new high-quality tags—this is the immediate effect of the Textile Fiber Products Identification Act on the nation's textile and tag industries, according to the Tag Manufacturer's Institute, national association of tag specialists.

"Don't miss the boat on the Act's requirements," urges Carroll A. Greathouse, TMI executive director. "By March 3, 1960, virtually every tag now in stock will have to be replaced, re-strung or supplemented to comply with durability and information requirements of the Act."

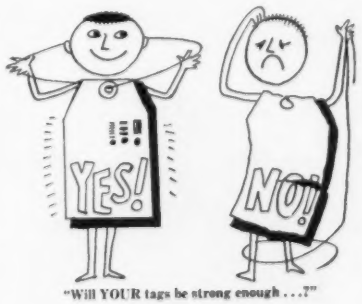
Until passage of this law, tag durability was a matter mostly for the conscience of the individual textile product maker or merchandiser. Starting March 3, 1960, however, tags and labels must be strong enough to measure up to Rule 15 of the Federal Trade Commission rules and regulations*, which states that the tag or label must be firmly attached to the product, and *must be of such durability as to remain attached* through the product's sale and resale, up to and including purchase by the ultimate consumer.

Durability Survey. This requirement will be a boon to department stores, previously plagued by flimsy merchandise tags, the TMI says. It will take care of tag problems such as that discovered a few years ago at S. Kleins, in New York.

During a period of regular selling days, Kleins ran a survey to discover durability of its merchandise tags. Results of the survey showed that over 400 tags per day were wrested from merchandise by customers, and most of them were removed before 1:00 pm, less than half-way through the normal selling day.

To economically comply with Rule 15, textile mills or merchandisers should increase the weight of their tag stock, use stronger string or switch over (in some cases) to decorative, sturdy reinforced tags strong enough to stand up under the wear and tear of store customer handling, the

"Do YOUR tags correctly list *all* the information required under the new law?"



"Will YOUR tags be strong enough . . .?"

*A complete discussion of these rules and regulations by members of a legal firm specializing in textile industry problems was given in the article, "Highlights of the Labeling Law," TEXTILE INDUSTRIES for August, 1959, pp. 87-91. A few reprints are available.—The Editors.

Good fabrics
begin
with good warps..

Good warps are
made on these
Kidde
machines

KIDDE CREELS
Custom built to your requirements. Will handle any package made today.

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Deliver from the Kidde creel to one of the Kidde Tricot warpers (there's one for every size spool). Finish the operation on a Kidde Knitter.

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Versatile . . . for all yarns. Smooth operation — easy doffing.

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KIDDE SLASHERS
For cotton or silk system slashing . . . constructed to meet your requirements.

Here's the formula for good warps . . . Start with any package . . . put it on a Kidde creel . . . deliver it to a Kidde warper . . . run it thru a Kidde slasher. You'll then have the kind of warp essential to the production of top quality fabrics. Of course, the creels, warpers and slashers may be used separately . . . but, for the finest results, maximum versatility and highest production they're designed to work together.

The key to any warping operation is accurate, uniform tension. To set the proper tension for the yarn being run, and for checking it during operation, Kidde Tensometers are essential. There's a full line of them; one is just right for every tension problem.

Want complete information on how to get the most out of your warping operation? Write to Kidde for literature describing the finest equipment made.

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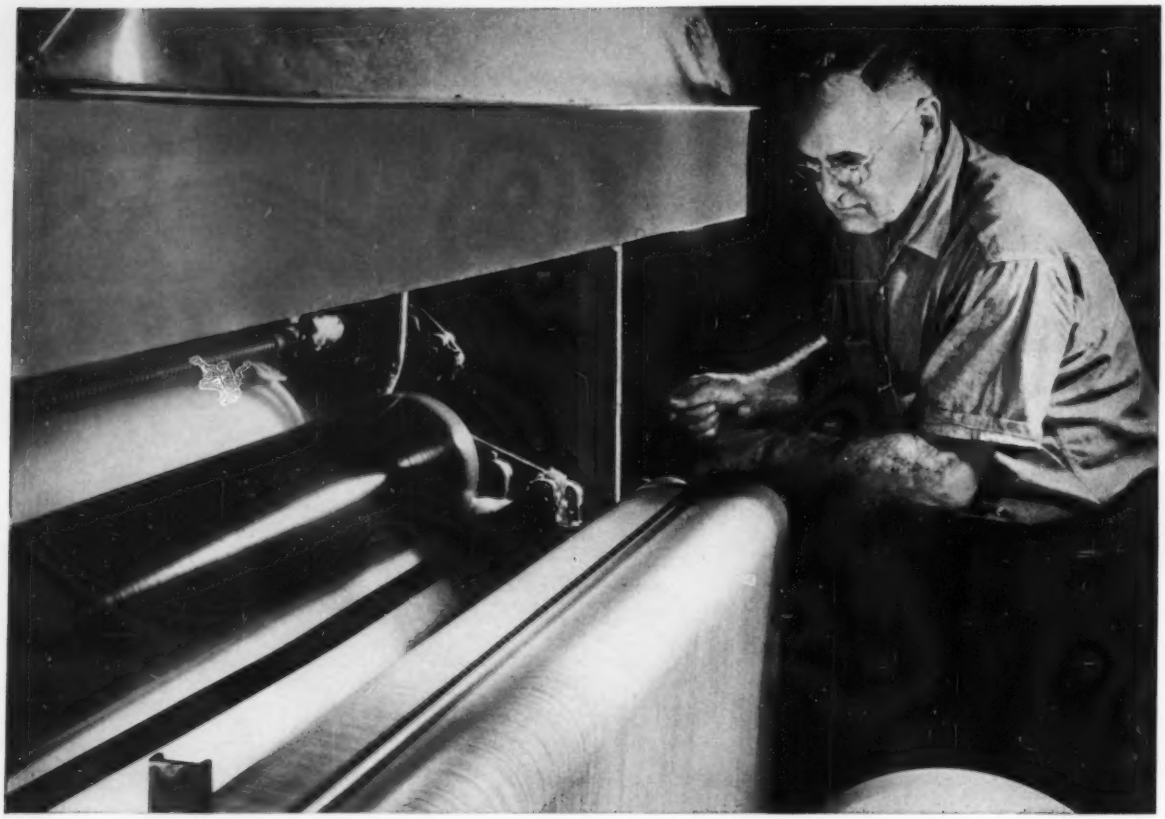

How Modern Mills Improve Slashing Operations

Time after time, mills around the country report greatly improved slashing operations with TEN-O-FILM starches. Compatible with most adjuncts and available in a wide range of fluidities, TEN-O-FILM users praise its many unique operating advantages.

TEN-O-FILM is ready to use after cooking thirty minutes. Many mills find need for less plasticizer than with conventional starches. The stability of TEN-O-FILM keeps size usable despite prolonged heating and cooling. Size made with TEN-O-FILM does not congeal or "skin over" at lower-than-normal temperatures . . . it can be held for reasonable shutdown period without gelation.

TEN-O-FILM offers several additional features including unequalled clarity of film, economy in desizing and dyeing.

Our technical service group has had wide experience and marked success in adapting this versatile starch to the varied needs of many textile applications. The production advantages and process improvements achieved by TEN-O-FILM can be fitted to your needs by consulting our textile technicians. Contact our nearest sales office or write direct.

TEN-O-FILM® starches

Other fine products for the Textile Industry: **EAGLE® • FOXHEAD® CLARO® • GLOBE® starches • GLOBE® and EXCELLO® dextrines**

CORN PRODUCTS SALES COMPANY 17 BATTERY PLACE, NEW YORK 4, N.Y.

TMI advises. This is particularly true of sale items in women's and children's lines.

Full Information. "The information-disclosure requirements of the Act listed under Rule 16 will usher in a new era in textile tagging," Mr. Greathouse says. Rule 16 specifies three basic requirements for information that must be included in informative tags:

1. The generic names and percentages by weight of the constituent fibers, exclusive of permitted ornamentation, in amounts of more than 5%, in order of predominance by weight.

2. The name or registered identification number of the manufacturer, or of one or more persons marketing or handling the product.

3. If imported, the name of the country of original manufacture.

In addition, Rule 16 states *how* the information must be listed: "The required information must be conspicuously and separately set out on the same side of the tag or label, in such manner as to be clearly legible, and the fiber content information must be listed in type of lettering of equal size or conspicuousness."

"There's only one exception to this rule," Mr. Greathouse says, "the manufacturer who lists his name on a separate tag, which must be displayed near the fiber content tag."

Typical tags which meet Textile Fiber Products Identification Act requirements.

LABELING QUESTIONS CLARIFIED

In order to clarify some of the questions which have been plaguing manufacturers in the various industries affected by the new Textile Fiber Products Identification Act, an interview with Harvey Hannah, Chief, Division of Textiles and Furs, Federal Trade Commission, was arranged by Herbert Rothchild of the Tag and Label Division, Rothchild Printing Co., New York. While none of Mr. Hannah's answers should be considered as official interpretations, they will be useful as guides and suggestions to readers in solving their own problems.

Q. If a manufacturer finds himself in conflict between the Wool Products Act and this new Textile Fiber Products one, which takes precedence?

A. If there is any wool in the product, it is subject to the Wool Act.

Q. Similarly, which takes precedence, this new Textile Act or the Trade Practice Conference Rules where there are any inconsistencies?

A. Being a federal law, the Textile Act must take precedence.

Q. If a manufacturer already has a Registration Number under the Wool Products Labeling Act, may he use the same one for the products he sells under this Act? If so, how should he designate that the number is being used for the new Act, or doesn't this make any difference?

A. Where a person subject to the Textile Act has a registered identification number assigned to him under the Wool Products Labeling Act, that number may be used as and for the required name under the Textile Act. However, the prefix "WPL" should be used in all instances regardless of fiber content, except, of course, if the Wool number is recent and has a prefix of "RN."

Q. A manufacturer wishes to readopt his old logo and trade name (still being used by the European branches) which includes the name of the firm plus the word "silks." Can he imprint a silk blend or 100% acetate fabric description on one side of the tag to conform with the law and still use this trade name?

A. Rule 18 would prohibit the use of the term "silks" in addition to a trade or brand name unless the product contains silk. If the product does contain silk the required fiber content information, with percentages, must appear the first time the generic term silk is used on the label. After this information appears, the word "silks" may then appear either alone or in conjunction with other non-required information.

Use of any generic name in the corporate or company name which implies *that the majority of the products of that firm are composed of that fiber, when in fact, they are not, may be considered as a deceptive act or practice* under the provisions of Section 5 of the Act.

Q. What is the purpose of *not* allowing fibers with less than 5% contents to be disclosed?

A. It is the general feeling of Congress as expressed in the Act itself that such a small percentage does not add materially to the product, but that it is used more for advertising promotion. In this way, it tends to confuse the consumer.

Q. How should the following be listed on the tag: Silk 52%, Cotton 42%, Rayon 3%, Acetate 3%?

A. Silk 52%, Cotton 42%, Other Fibers 6%. Since both rayon and acetate are under 5%, they may not be named. It is *not* the aggre-

Continued on page 185

No. 13 in a series—How your Du Pont salesman is backed by many sales-building activities, including Fiber Research, Technical Service, Fabric Development and Merchandising.

The man from Du Pont... ready to help you unwind new fabric ideas

Standing in the midst of some of the new fabrics he has helped to create is Ken Ryan. His title is Fabric Development Manager, but he is better known as a "hard-headed perfectionist."

Shown here with Ken in the new fabrics showroom at Du Pont's New York office is Walter Ross of Rosewood Fabrics, one of many who frequently discuss new fabric concepts based on Du Pont fibers with Ken or his associates.

Ken Ryan's group benefits from the fact that hundreds of Du Pont employees are working on fiber and fabric research, developing and perfecting new modifications of Du Pont nylon, "Dacron"* polyester fiber, "Orlon"** acrylic fiber, "Acele"*** acetate, and rayon fashion yarns. When these developments show real promise, they are further worked out in direct collaboration with mills to assure they will result in fabrics that meet high-fashion and mass-market needs. To initiate new fiber ideas, to find unique textures through new applications of engineering principles, to follow through any economically sound idea that may prove of importance to the textile industry: that's Ken's job.

For this is Du Pont's constant aim—to help the textile industry improve America's textile values. The highly knowledgeable, always practical information developed by the Fabric Development Group helps you, our customer, build a better market for your fabrics.

*"Dacron" and **"Orlon" are Du Pont's registered trademarks.
***"Acele" is a Du Pont trademark.

From raw fibers to retail sales... Du Pont helps build profits for you

PRODUCT and PROCESS NOTES FROM DU PONT

"ACELE"* TYPE 20. A few years ago Du Pont introduced a new modified cross-section acetate yarn called "Type 20" to the upholstery industry. This new yarn demonstrated greater bulk, resilience and covering power in pile-frieze fabrics, set new standards in fabric construction and earned a permanent position in the trade. Now Du Pont offers fine denier "Acele" acetate Type 20 yarns for use in lighter-weight fabrics for apparel and draperies. The modified cross section gives fabrics greater bulk and substance, fuller draping properties and a drier hand, with the look and feel of silk, than conventional acetate yarns have.

NEW 30" FLANGE NYLON TRICOT BEAM. Du Pont has a new 30" flange tricot beam for 30 and 40 denier. This new packaging development, available in limited quantities, is designed to fit the trend to high-speed tricot machines.

Because of its increased size, the new beam contains more than twice the yardage of the conventional 21" beam, enabling mills to run their high-speed knitting machines more than twice as long without change—this accomplished with no sacrifice in performance and quality.

DU PONT SPARKLING NYLON. An exclusive fiber development of major significance to the hosiery industry has just recently been announced. "Du Pont Sparkling Nylon" in 15 denier, created for high-fashion, special-occasion hosiery, makes stockings glimmer. Timed for holiday selling, the sparkling look is engineered into the structure of the fiber. It will not fade out, wash out or wear out. It lasts the life of the hosiery.

IMPROVED PRINTING OF BLENDS OF "DACRON" AND COTTON.** Now fabrics of "Dacron" polyester fiber and cotton can be economically printed in a full range of shades with good fastness properties. Improved printing is achieved by a new resin-bonded pigment system developed by the Interchemical Corporation. Generally, fastness properties of this system compare favorably with those of washfast printed cottons. Extensive wear tests under severe conditions show prints have excellent durability.

*Du Pont's trademark for its acetate yarn.
**Du Pont's reg. trademark for its polyester fiber.

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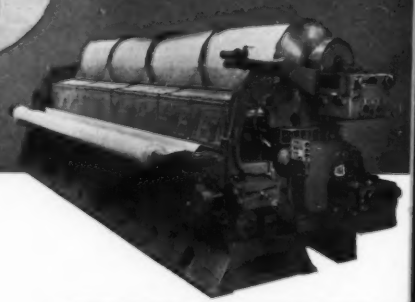

Wire Products Division

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The "READING" *Tricot Machine*

KNITTING SECTION

Northern New England
Section, AATCC

Winning paper in the
1959 AATCC
Intersectional Contest

Abstract

FORTY-ONE knitted pile fabrics, representing a wide range of weights and pile heights, were prepared by the inserted pile knitting technique*, to study the structural characteristics of such fabrics. Also studied were the effects of pile height, weight, fiber denier, softener, and fiber length on compressibility, recovery, and tendency to tuft or mat.

Dynel was the fiber used in the fabrics, which ranged from 13.8 to 35.5 oz/sq yd total finished weight (both back and pile), with pile heights from 0.38″ to 1.10″ in the finished fabric.

After knitting and slitting, the fabrics were backcoated with an acrylic latex, electrified**, sheared to finished height, again electrified, and sheared to final height.

Compressional Properties. Measurements of compression and recovery under loads up to 410 lb/sq ft were made on an Instron tester. From examination of the compression-recovery curves, of which *Figure 1* is typical, these results were found:

1. Fabrics prepared from 3-denier fibers were more easily compressed than those of 12-denier. A 50/50 blend of 3- and 12-denier was quite similar to the fabrics prepared from 12-denier but quite different from the fabrics made of 3-denier fibers—perhaps the most surprising result of the study.

2. The initial fiber length only

Continued on page 135

Here's a way to

predict pile fabric properties

*See TEXTILE INDUSTRIES for Feb., 1957, pp. 198-201, for details of the method.
**A process described fully in TEXTILE INDUSTRIES for Nov., 1959, pp. 131 to 137.

Figure 1. Typical compression and recovery curves

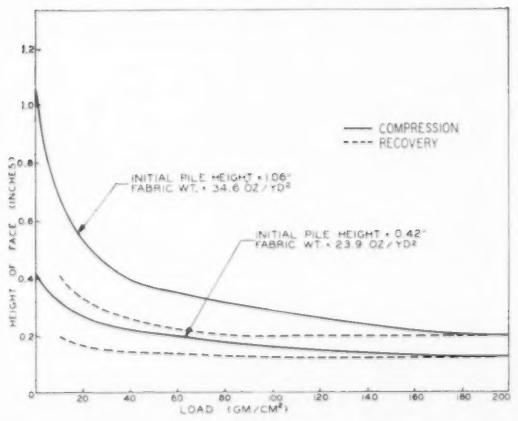
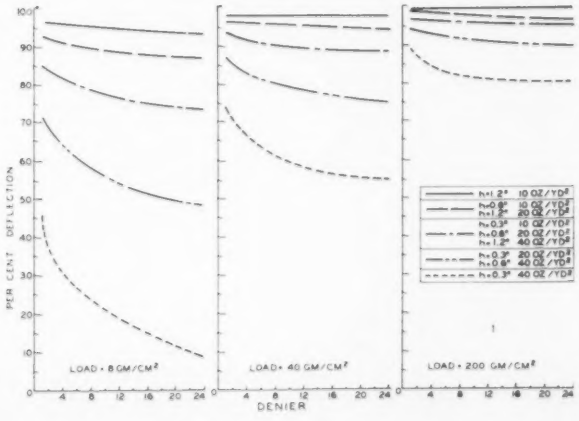
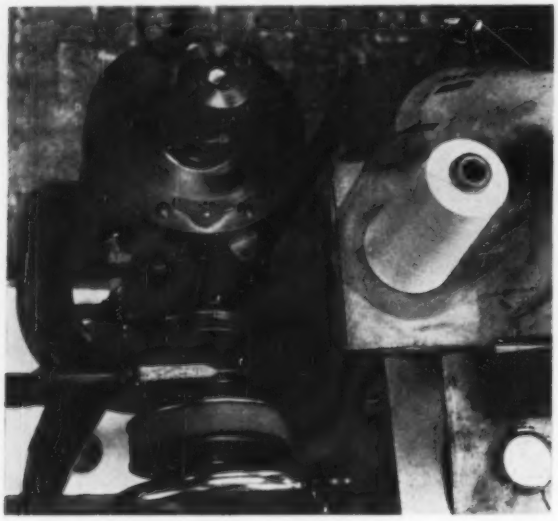


Figure 2. Per cent pile deflection as a function of denier



Straight tubing, which is of a fine construction, is knitted of 140-denier textured Dacron (Fluflon) on the Wildman-Jacquard machine at left below; it uses 34 spring beard needles per inch. The tubing can be knitted in diameters ranging from 3/8" to 11/2" and above. After knitting, the tubing is scoured, bleached, and dried. Then it is crimped in a two-stage process developed by Dr. De Bakey. First, the tubing is drawn over a mandrel of correct size and placed in a conventional machine lathe. A nylon thread is then wound around the tubing, across and back, while the mandrel is revolving, as shown at right below. The tubing is then hand-formed into a crimped shape. (Note tubing of shorter length on rack.) In the second stage, the crimp is permanently set at a temperature of 450 F for eight minutes in an oven, which can be seen in the background. The nylon thread is then removed.



Knitting spare parts for human bodies

Knitted arterial grafts replace damaged arteries

Staff prepared Exclusive

FOR MORE than fifty years medical science has sought materials which could be formed into arterial grafts and used in place of defective human arteries. The most successful surgical technique had been to utilize arterial homografts (actual human arteries) removed from the deceased with permission of next of kin. But arterial homografts pose the danger of developing weaknesses after insertion, which cannot be detected beforehand. Besides, there is the real possibility that in times of wide-spread emergencies the supply of arterial homografts may not be adequate.

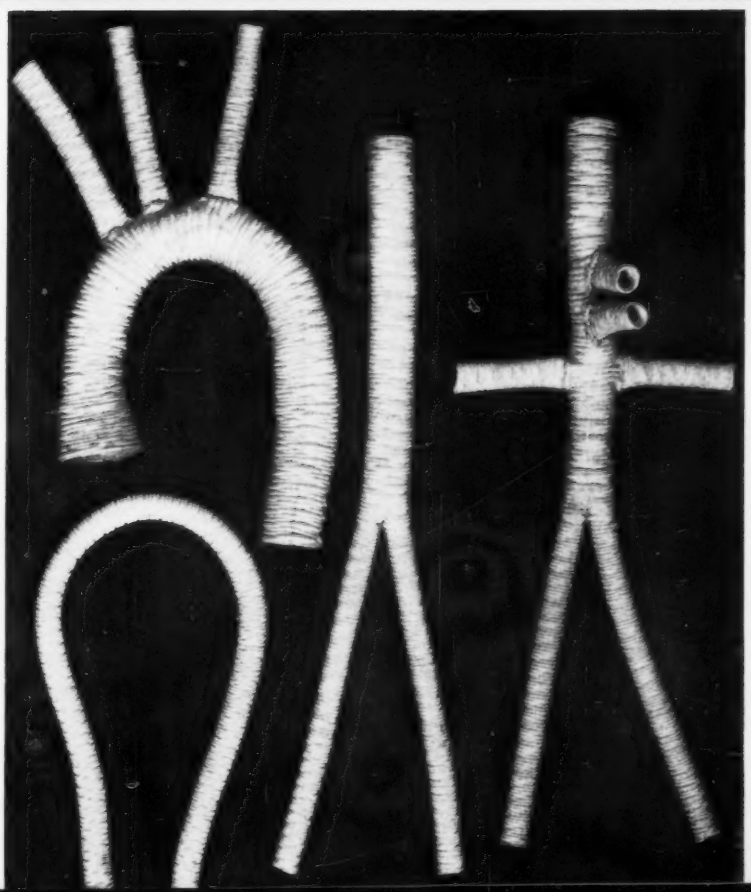
Thus, what surgeons have wanted is an arterial graft which could perform as well as a healthy artery and could be manufactured in quantity. Such an arterial graft has now been developed, and surgeons in all parts of the world are using it with the greatest confidence.

The most widely used graft is the De Bakey Knitted Arterial Graft, so named after its designer, Dr. Michael E. De Bakey of Baylor University, Houston, Texas. It is knitted of Dacron Fluflon on machines of special design, that were developed in a joint project between Baylor's College of Medicine and the Philadelphia Textile Institute. Playing a big part were machinery and needle manufacturers, fiber producers, and spinners, who contributed their respective know-how toward designing a nearly perfect arterial graft.

The project began in 1954 when Arthur Hanisch, head of a pharmaceutical firm, underwent an operation for the removal of a defective artery. Dr. De Bakey, who performed the operation, used an arterial homograft. Although the operation was successful and Mr. Hanisch resumed a normal life, he realized the pressing need for arterial grafts and almost at once financed a project toward their development. Today, Mr. Hanisch continues to lead a normal life, but always carries an arterial graft in the event that the homograft may require sudden replacement. In less than four years Mr. Hanisch has seen the success of his project.

Materials, Machines, Techniques. Past experimentation had shown certain materials to be unsuitable

The De Bakey Knitted Arterial Graft, so named for its designer, Dr. Michael E. De Bakey, of Baylor University's College of Medicine. Shown here after insertion is the bifurcation aortic graft, which will perform the function of a healthy artery. It will carry blood from the heart for distribution by branch arteries through the body.



Knitted tubing of textured Dacron (Fluflon) is most widely used, although woven Teflon has also proved successful. The branched and straight arterial grafts shown at the right are knitted to specifications on machines of special design. The side branches are attached by hand stitching. To prevent clotting, filament yarn is used. Texturizing reduces porosity and thereby prevents excessive blood loss during insertion of graft.

for arterial grafts. Plastic tubing, for example, lacks porosity, which is required to a fine degree; and its smoothness prevents tissue from forming on its inner walls. Braided materials were found lacking in one or more important properties. Surgeons had difficulty in making sutures because of fraying, and the tubing changed in diameter to cause changes in blood pressure.

Woven tubing, as first develop-

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ed, was found unsatisfactory, but a more recent development, woven of Teflon is finding greater usage. Teflon has an advantage over Dacron in chemical resistance, but not to an appreciable extent. However, it presents difficulties in bleaching. But the earlier problem of fraying, characteristic of woven as well as braided tubing, has been overcome.

In the light of early results, experimentation pointed toward a knitted tubing which on later improvement met with surgeons' requirements. In a series of experiments, in which grafts of various fibers were evaluated in dogs, the project settled on the perfection of a seamless, knitted Dacron tubing. Filament yarn was selected over spun yarn as it eliminated the possibility of forming blood clots.

A disadvantage of these early knitted grafts, however, was their high porosity, which caused excessive loss of blood during insertion of the graft. This led to textured yarns as a possible solution. After experimentation, Dacron filament yarn, texturized by the Fluflon process, was adopted. Texturizing reduces porosity, by creating bulk, to a degree unattainable even with the most tightly knitted constructions. The tubing is also coated to further prevent leakage of blood while tissue is forming on the inner walls.

Arterial grafts are by necessity of many shapes and sizes, duplicating those found in human beings. (Some are shown in an accompanying photograph.) Besides the simple straight tubing, found in the legs, there are bifurcation grafts, such as the large artery located below the heart. Moreover, arteries have branches. These requirements of shape and size have been met, however, and machines and techniques have been developed for their manufacture.

As the accompanying photographs show, two distinct machines (shown in photos in operation at Geo. P. Piling & Sons, in Philadelphia) were developed for the manufacture of the two principal types of grafts: Bifurcation grafts are manufactured on the Queens Machine Corp.'s flat machine, and simple straight tubing on Wildman-Jacquard's circular machine. Branch tubes, which are short lengths of straight tubing, are effectively hand stitched to the main graft.

Professor Thomas Edman of Philadelphia Textile Institute's faculty, who was one of the pioneers in the development of knitted grafts, demonstrates that a graft cannot collapse when bent after crimping. In background is the Queens Machine Corp.'s flat machine installed at the plant of George P. Piling & Sons, manufacturers of knitted grafts. This machine knits six bifurcation grafts at a time, using 18 latch needles per inch. For the bifurcation graft, a 490-denier textured Dacron (Fluflon) filament yarn is used.

The first arterial grafts developed at the Philadelphia Textile Institute were knitted on a Dubied IIJ eight-lock, flat machine. Instead of needles and jacks, short and long needles were used. These were specially designed by the Torrington Co. This hand-operated machine was subsequently converted to a semi-automatic drive by Queens Machine Corp. On this improved machine, bifurcation grafts were successfully knitted.

Subsequently, Queens Machine built an improved model (shown in photograph) which could not only knit bifurcation grafts but the multi-branch tubes as well, which can be connected to all vital organs of the body. This model is an 18-cut, "V" flat, eight-lock, semi-automatic machine, which in a normal eight-hour day produces 35 bifurcation tubes. Each part of the eight-lock cam section has a raising cam and two stitch cams to be operated from either direction of carriage movement.

The straight tubing, on the other hand, is knitted on a circular machine, a development of the Wildman-Jacquard Company. Tubing from ⅜" in diameter to 1½" and above can be knitted. The machine utilizes spring beard needles, 34 to the inch. The finer construction of the straight tubing calls for a 140-denier Dacron Fluflon, whereas the bifurcation graft calls for a 490-denier size.

Bifurcation tubes have also been knitted at the School of Textiles, North Carolina State College, on necktie machines; the branches being attached by hand stitching. Each different size graft, however, requires a different size needle cylinder.

Unique "Crimping" Process. While development work was under way to perfect machine design and to establish knitting techniques, a process was being developed to permanently "crimp" the tubing. The purpose is to prevent the graft from collapsing when bent, an important property which would allow normal human activity. The process, a development of Dr. De Bakey, took advantage of the thermoplastic property of Dacron, which enables it to be permanently set (by heat-

Chemical stabilization of cotton knitgoods

was discussed at the recent Chemical Finishing Conference. See the report which begins on page 109.

For a 1959 Index of TI

write to The Editors, "Textile Industries," 806 Peachtree St., N.E., Atlanta 8, Ga.

ing) in a new form or shape. In the right photograph on page 130 the equipment and facilities required to carry out the two-step process are shown.

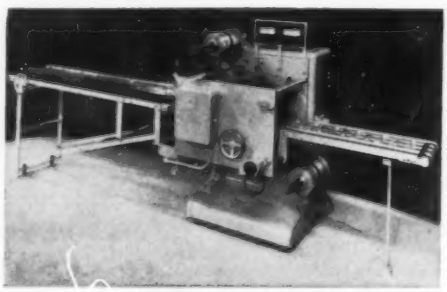
After the knitted tubing is scoured (to produce the textured effect), it is bleached and dried. Then, each tube is drawn over a mandrel of correct size and a nylon thread is wound around the tubing (across and back) as the mandrel revolves. After the nylon threads are secured at the ends, the tubing is contracted by hand into a "crimped" shape.

For the bifurcation grafts, a special mandrel has been designed to accommodate its forked shape; but the procedure is essentially the same. The tubing is then cured at a temperature of 450 F for eight minutes. Then the nylon thread is removed and the tubing is ready for use after sterilization in an autoclave.

Research Continues. Although the project has resulted in a near-perfect arterial graft, and surgeons in all parts of the world are using it without fear, research for even greater improvements continues. At the time of this writing, Queens Machine is putting an improved model for knitting bifurcation grafts through final testing. The problem of porosity is coming closer to solution—an electronic instrument is under development to accurately measure this critical property. And though tubing ranging in diameter from 4 mm to 25 mm can now be knitted, the present goal is to knit tubing 2 mm in diameter as a replacement for coronary arteries.

Nevertheless, the knitted arterial graft in its present state is a remarkable achievement. In the discussion thus far only the more critical properties of the graft have been mentioned. Permanency is yet another requirement that has been met. Its importance becomes evident when it is realized that blood vessels carry about 4,000 quarts of blood daily under a pumping pressure of the heart of 140 mm of mercury. During insertion of the graft, still another property comes into evidence. It can be cut at any angle without fraying.

As the chemical industry offers new fibers and materials, they will be put to the test, and machines and techniques for their manufacture will be perfected. Meanwhile, arterial grafts are serving to prolong life. To point to the perfected state of surgical techniques, Dr. De Bakey and his assistants at Baylor have already performed more than 500 operations using the grafts.



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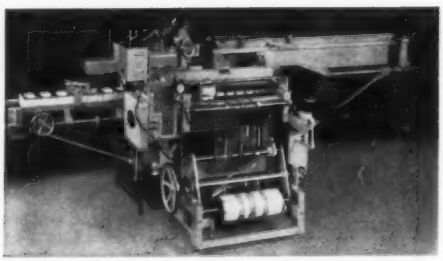

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Sees bright future for knitwear

■ KNITWEAR has a potential future which may eventually rival woven textiles, said Ruth Jackendoff, director of The Wool Bureau's department of economics and statistics, in a recently published report entitled "The Knitwear Market, Review and Outlook, 1958/1959." Following are the reasons given for this opinion:

1. The place of knitwear in modern, easy-care living and traveling is already well established. Knit garments seldom need pressing after being packed or worn, and many of them may be worn or used without pressing after washing or cleaning.

2. Knitting as a technique for producing consumer textiles is faster and more economical than weaving. To the extent that garments and other articles of apparel can be shaped directly on knitting machines (as well as cut and sewn from knit fabrics) it makes possible lower-cost products for volume markets.

Attesting to the continuing vitality of the expanding knitwear market, Miss Jackendoff said, is the 1958 data which reveal that it bucked the textile recession when the production of broadwoven fabrics was reduced below 12 billion yards. This volume had been barely maintained between 1947 and 1957 while the weight of yarns consumed in the production of knit cloth for sale and in manufacture of knit underwear, nightwear, and outerwear increased by almost 50 per cent, she pointed out.

As indicated in the following extract of the report, it showed that:

(1) Use of knit outerwear fabrics is expanding faster than other knit fabrics;

(2) The sweater market is making important sectional gains; and

(3) Wool knitwear is in the initial stage of a long-term revival.

Knit Outerwear Fabrics Expand Faster. By contrast to the 4 per cent decline in broadwoven yardage between 1957 and 1958, the knit cloth sector of the textile industry experienced a number of important plusses:

(1) Yarns consumed in the production of all knit cloth for sale increased 4 per cent from 215 million pounds to 224 million.

(2) Shipments of all kinds of knit cloth for sale increased 5 per cent, but outerwear fabrics shipments, which accounted for 79 million of the total 203 million pounds shipped in 1958, increased 12 per cent.

(3) Among the circular knit outerwear fabrics, shipments of dress and suiting fabrics increased 23 per cent; polo shirt fabrics, 12 per cent; and overcoating, topcoating, ski and snow-suit fabrics, 10 per cent.

(4) Shipments of warp knit outerwear fabrics rose 9 per cent from 1957 to 1958.

The gain in dress and suiting fabrics reflected a major breakthrough to a new high level of 16.5 million pounds following a tripling in production between 1947 and 1957.

Sweater Market. Total production of all types of sweaters in 1958 was almost 3 per cent higher than in 1957. A gain of 15 per cent was made in the production of men's and boys' sweaters and a more modest gain of 4 per cent in girls' and teenage girls' sweaters. The production of women's sweaters declined less than five-tenths of one per cent, and that of children's and infants' sweaters declined 3 per cent.

Sweaters produced for boys and girls during 1958 extended the gains relative to population made in the 1947-1957 period. In addition, men's sweater output expanded faster than population in 1958, reversing the 1947-1957 relationship. However, the children's and infants' sweater market sustained the poor market trend revealed in the 1947-1957 period, and the women's sweater market suffered a setback in comparison with the very favorable long-term trend. (It should be pointed out that both men's and women's sweater shipments had bigger percentage gains, 17 per cent and 1 per cent respectively, between 1957 and 1958 than did production. This means that expanding retail demand was partly satisfied from manufacturers' inventories.)

Growing Use of Wool in Knitwear. The revival of the use of wool in knitwear which started in the winter of 1958 has been gaining momentum during 1959. The low price of wool was undoubtedly the direct cause of increased demand for wool yarns by knitters in the latter part of 1958.

According to trade reports, spinners are operating at capacity to fill the demand for wool knitting yarns.

Pile fabric *(from page 129)*

influences the compressibility at high pile heights (⅝" or more).

3. When 2 per cent of a cationic softener was used, resistance to compression was increased.

4. The behavior of these fabrics under compression can be predicted with reasonable accuracy from the following equation:

$$S = k \log \left[\frac{h\sqrt{m}}{Nd^{1.2}}\right] - k \log \left[1 + \tfrac{1}{2}\frac{h\sqrt{m}}{Nd^{1.2}}\right] + C$$

where "S" is the per cent decrease in original pile height "h" under load "m" for a fabric containing "N" fibers (per unit area) of denier "d." The symbols "k" and "C" are constants, the former representing the slope of the straight line obtained by plotting "S" versus the logarithmic terms shown in the equation.

Tufting and Matting. It was found that tufting starts at the surface of the fabric and works its way down toward the base. No reason was found to believe that tufting started because of static charges or other factors which may cause the fibers to entangle all along their length.

The best means for studying tufting in the laboratory was found to be a relatively simple test method of tumbling the fabrics in a dry state in a washing machine. Observations from these tests:

1. Pile height is probably the most important factor in tufting. Changes which showed dramatically in 1⅛-inch-pile fabrics were very slight at ⅜ inch.

2. Pile weight is next in importance; in long-pile fabrics, the greater the weight the better the resistance to tufting.

3. The importance of denier is slight compared to pile height and weight.

4. The effects on tufting of fiber length, softener, and heat setting were not found to be significant.

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"People," in this case, include everyone from the president of the company to the shipping clerk. However, since we cannot do justice to them all in this space, we show and identify here only the Franklin Process sales and service representatives—the people you are most likely to contact. These men are not only trained to accept your orders in an intelligent and accurate manner, but are also qualified and anxious to help you in many other ways:—

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3. **Work out contract schedules.**
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183-9

Franklin Process

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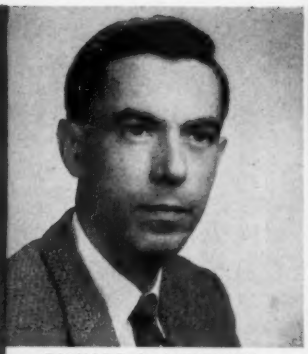

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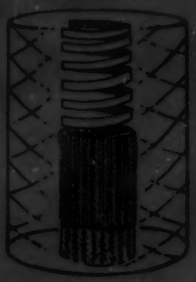

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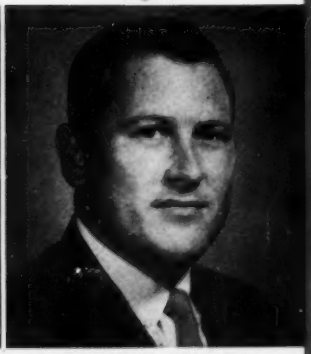

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HOW OTHERS MANAGE

Keep cold chisels in the pink of condition

■ THE COLD CHISEL is a mighty sturdy tool, but even it meets its match in repeated blows from equally rugged hammers or from having its cutting edge blunted against materials that can give a diamond cutter a good workout. Fortunately, blunted cold chisels can be restored to good working condition by judicious grinding.

Where damage is severe, large chunks of metal missing from the cutting edge, etc., considerable grinding will be needed to restore the proper profile, and it should be done so slowly that the metal is not heated to discoloration. Use water to keep the temperature down, and shape the cutting edge to a 60-degree included angle for everyday use on soft steels (give or take a degree or two). The angle may be as large as 70 degrees for cutting cast iron.

Taking liberties with this angle

will lead to "blunting" if the angle is too great. And there usually is nothing to be gained by grinding the edge to a long taper, for the absence of support metal will allow easy edge battering. Tool manufacturers did not adopt that angle arbitrarily. Of course, if one grinds a keen tool for special purposes (there is no law against it) he should be prepared for frequent sharpenings.

Unless one is trained in the art (or science) of tempering steel, he should not attempt seriously to retemper a chisel without first purchasing a standby tool. For he probably will spend all winter, or as long as there is a scrap of chisel big enough to work with, trying to get a workable edge. Amateurish tempering usually yields results that are "too brittle" and "too soft." Thus, when a chisel of the first category is struck smartly it often shatters (some of the pieces get lost, too) at or near the edge. If too soft, the metal to be cut often simply reverses the roles and works the chisel over in its own image. While such results may be interesting to the would-be blacksmith, they are costly in man-hours.

The manufacturer is pretty good at selecting steels that respond to the demands made on them, but even he cannot make a chisel that is indestructible. So, from time to time it becomes necessary to reshape the cutting edge or to remove the mushroomed end that has appeared where the hammer stops so suddenly.

Touch up that cutting edge with care, using the side of the emery

It's later than you think. Almost before you can say "Kink Contest" we will have closed out the last one for this year, so hurry up and send us that kink you have been keeping in the back of your head.—The Editors

Only a few days left!

Every kink, short-cut, time-saver, or quality improvement suggestion entered in the contest will be paid for immediately upon acceptance and the $100 award will be made as soon as all entries are judged.

The contest rules are simple:

► All contributions must be postmarked not later than midnight, December 15, 1959.

► No limit to the number of entries an individual may submit in any one contest.

► All entries paid for upon acceptance — no waiting. Extra payment for photographs that are usable. Extra consideration is also given kinks accompanied by legible pencil sketches or drawings.

► Entries must not have been published previously and must not be submitted to any other publication.

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wheel if necessary, making it as sharp as the 60 degrees will allow and smooth and straight. Then grind away the mushroomed head to a slight chamfer.

(Watch for the third in a series of staff items devoted to the care of hand tools used about the textile plant.—The Editors)

Are polyvinyl-chloride-coated yarns being used in carpet backings?

THE EDITORS:

On pages 132-133 of the March, 1959, issue, P. Abbenheim answers an inquiry about the PVC application to the backing of tufted carpeting.

I should be pleased to hear from your correspondent if he knows of any case where PVC coated yarn has been used to make the backing material. Does he know why some feel that PVC has "something special to offer"?

CONTRIBUTOR No. 1194

THE EDITORS:

I have heard about PVC coated yarns being used for making backing fabrics for tufted carpets. Beyond saying that the work is reported from the U.S.A., I am afraid I can not be more explicit. It seems that the idea is to make a "weldable" backing. The carpet can then be finished in the usual way and finally sealed up by taking the finished product over heated rollers which melt the PVC to seal-in the tufts.

Probably the bonding will be even more efficient than that obtained by other techniques, such as lick roller coating, but I do not feel that this is so important and certainly not justified by the obviously more expensive system of yarn dipping and coating which must precede the weaving of the backing. I have never heard of any commercially acceptable carpet being made by this technique.

On the question of why some people prefer PVC backing, I would say that the arguments offered by exponents of this backing in Britain appear to be extremely sound. I would point out, however, that there are equally sound reasons offered for using latex.

The first reason offered for using PVC is that it gives a tuft locking that is better than is obtainable with other materials. It is also reported to give the carpet more dimensional stability. It has a longer floor life than most synthetic rubbers. It is easy to apply and "curing" is about as simple as can be imagined. It can be applied in a variety of forms, from very thick to extremely light. It can be modified with various loaders. But on these last two points the remarks would also apply to latices of various types. It is fire resistant and this is raised as a valuable attribute when carpet is to be used in public places or in transports such as airplanes, etc.

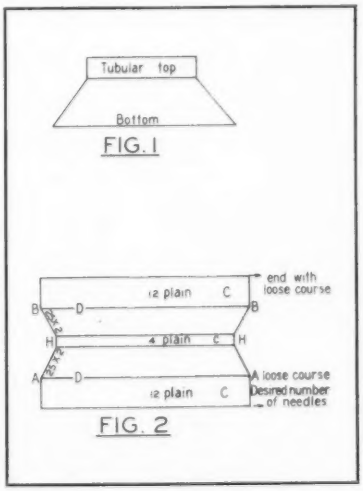
Here in Britain there is considerable interest in the latest form of PVC backing made by Durie & Miller. It is expanded during application and the slight foaming of the backing is said to make this attractive because it is more resilient and at the same time a lighter weight of backing can be applied to give the same effective thickness and dimensional stability. The backing, however, is not foamed like the foam rubber backing, but it is simply expanded by a large number of air bubbles. . ."

P. ABBENHEIM

One way to make F-F sweater collars

THE EDITORS:

Many mills make full-fashioned collars for sweaters on a flat knitting machine, transferring the needles by hand to the desired shape (see Fig. 1) and the tubular stitch on top for the sandwich collar.



We have made the collar on a full-fashioned machine (Reading) and accomplished the same end result. The collar may be knitted in the way it is desired or designed. For example, to match the collar shown in Fig. 1, knitting would be as follows:

Start with the desired number of needles, and knit 12 plain courses. Then make a loose course, followed by narrowing 25 x 2 and 4 plain courses; next, widen 25 x 2 and then knit a loose course followed by 12 plain courses. If it is desired to make many of these, another loose course should be put in before repeating the procedure.

The collars are given to a girl on a single-thread seaming machine to be closed by putting AH to HB and the same thing on the other side (as shown in Fig. 2).

The girl who loops the collars would have a loose course on both sides of the collar for looping, and the cost would be much less than collars made by hand. Other shapes of collars may be made by using the same basic idea.

CONTRIBUTOR No. 1204

CROWN'S NEW C-TRON

LOW FREE FORMALDEHYDE RESIN

. . . diminishes odor problems

often eliminates afterwash

While imparting high quality crease and shrink resistance, Crown's C-TRON resin solves formaldehyde odor-problems . . . both in the processing plant and in the finished fabric. Its extremely low free formaldehyde content has enabled many plants to eliminate the afterwash process entirely!

Crown's representatives will gladly give you complete details concerning the new C-TRON thermosetting resin including how it may solve any resin problems you may have involving deleterious effects upon light fastness of reactant type dyestuffs. Call your man from Crown — or write direct!

Crown Chemical

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Peterboro, N. H., Greensboro, N. C., Burlington, N. C., (Warehouse), Greenville, S. C., Ware Shoals, S. C.
IN CANADA: Marwin Dyestuff of Canada Ltd. IN SWITZERLAND: Bubeck & Dolder, Basle, Switzerland.

Shield keeps bobbins confined to spooler

THE EDITORS:

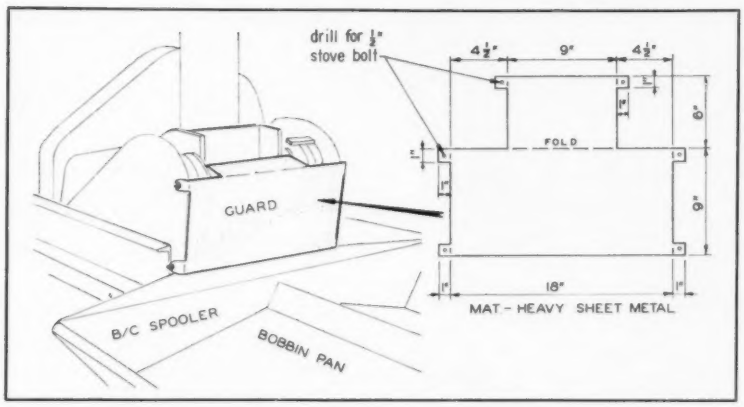
This kink is a safety shield or guard used on the elevator shaft of Model C spoolers to eliminate bobbin jamming where the belts discharge empty bobbins into the pans. Made of strong sheet metal, of simple construction, and requiring very little upkeep, it does a wonderful job of eliminating "flying bobbins."

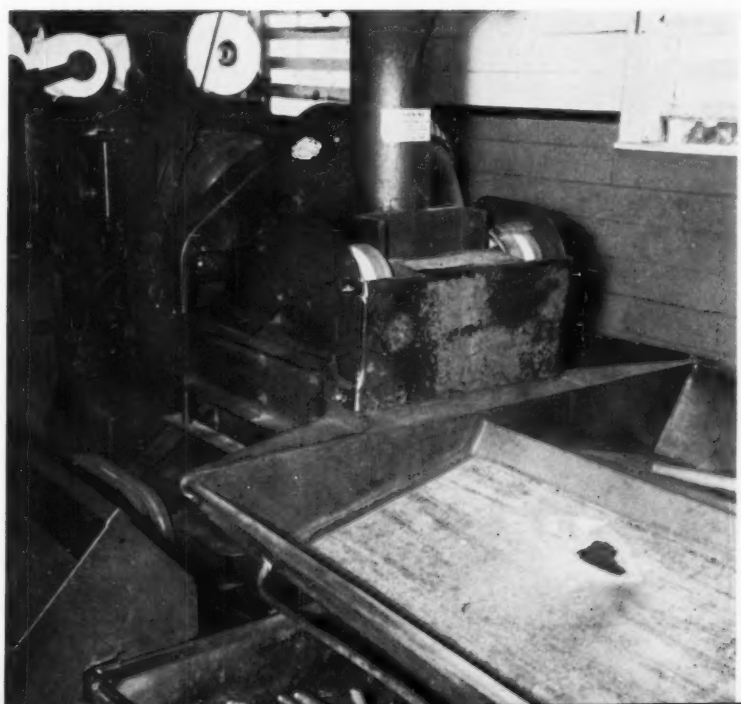
Before we installed it, the empty bobbins would telescope or stick together, drop back on the conveyor belts and jam them. With all the force of a jammed belt exerting itself against the stuck bobbins, our operatives became afraid to try to relieve such "log jam," for at least once the sudden release of energy threw bobbins through a nearby window.

Our bobbins are of plastic and have thin walls compared to their diameters, so they really can jam together at times. But the guard permits the bobbins now to pass over the belt individually, and it's impossible for them to jam together after they pass over it. The operatives are able to concentrate on their jobs, too.

It also has helped me in my duties as second hand. Previously I had to clean up many of the jams, leaving other duties unattended in getting the spooler back into production. So as the old saying goes, we (operatives, myself, overseer, superintendent, etc.) are "tickled pink" over its performance.

CONTRIBUTOR No. 1196



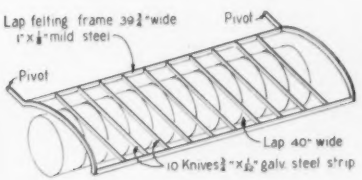


Split-lap preventive

THE EDITORS:

An auxiliary felting device will sometimes prevent lap splitting, cut out a measure of lap waste, and improve sliver quality considerably. The device is made of 1" x ⅛" mild steel bars welded into a frame (see illustration) across which are fastened 10 "knives" made of ¾" x 1/32" galvanized steel strips. The other dimensions are to be worked out for the picker under consideration.

The whole frame is pivoted at a suitable point to expedite lifting it clear for doffing and to allow it to ride freely atop the ever-growing lap. The weight is distributed across the 10 knives which rearrange enough fiber to impart a measure of felting. Our apparatus weighs five pounds.



The knives, working on edge, function in a manner similar to that of the conventional or existing lap felters, or split lap preventers, that are mounted at the top calender roll. We checked our assembly and found that it applies effective pressure of about 3.5 pounds just after the new lap is started, while it applies some 5.5 pounds at the finish of the lap. This is brought about by the changing relationship between the pivot points and the knife contact

points, their growing closer together with an increase in lap diameter creating a lever effect on a full lap. Be that as it may, we find that it prevents part of the troublesome licking some of our stocks were doing.

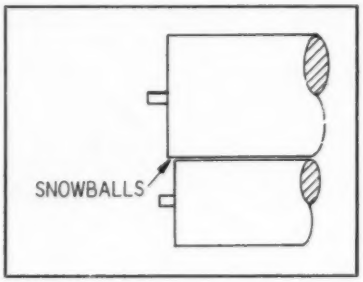
CONTRIBUTOR No. 1187
(Scotland)

Cures snowballs

THE EDITORS:

We had a card that resisted every effort to prevent its snowballing. These lumps formed at only one side of the web.

When we changed the clothing, we noticed that on that offending



side the border of the cylinder was overhanging the doffer border (see drawing) by about ⅛".

When we aligned the doffer and cylinder edges the snowballs completely disappeared.

CONTRIBUTOR No. 1195

"We can make it"

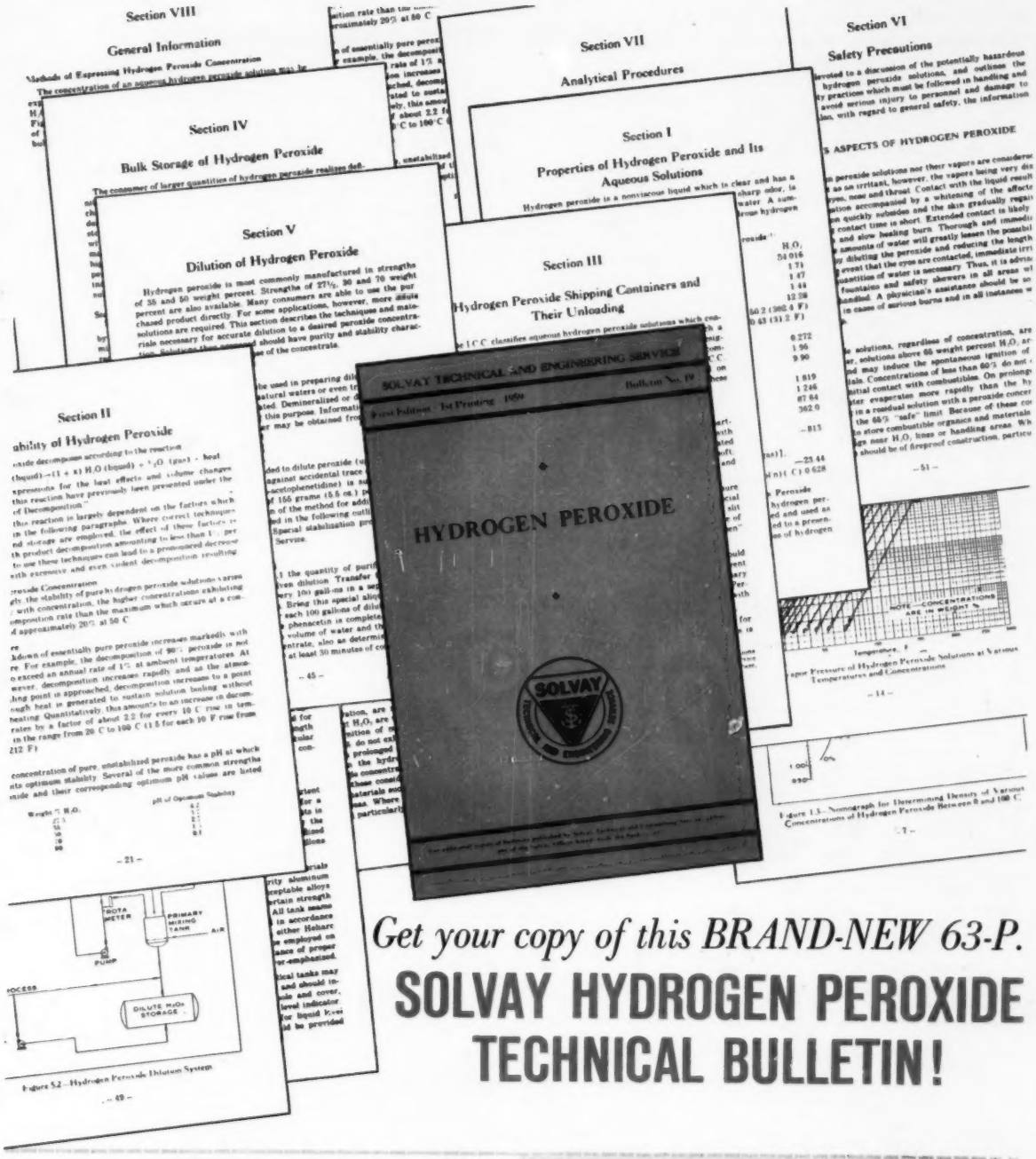
THE EDITORS:

In the "Who Can Make It?" department of the August issue of TI, CONTRIBUTOR No. 1174 asks who can make a suitable covering for the driver rolls of roll-up machines to prevent bowing and skewing filling yarns.

It seems to us that a coarse asbestos fabric coated with a heat-resistant rubber might work. Will you please give us the name of the contributor so we can arrange to submit samples?

UNITED STATES RUBBER CO.

(Continued on p. 146)



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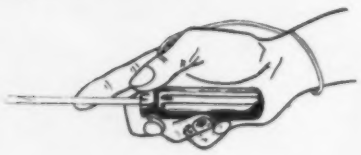
(Continued from p. 144)

► Our policy does not permit our disclosing the name of a contributor without his consent, so we sent a copy of the above to Contributor No. 1174 so he can initiate the next action as he sees fit. Anybody else got any ideas on this?—*The Editors.*

Tie tools to wrist



THE EDITORS:

Mechanics, in working in hard-to-reach places or places where tools can be lost if dropped, could well use a string or rubber band to secure the tool to the wrist. Then, if the screwdriver, wrench, bolt, etc., is dropped it still remains within the working area.

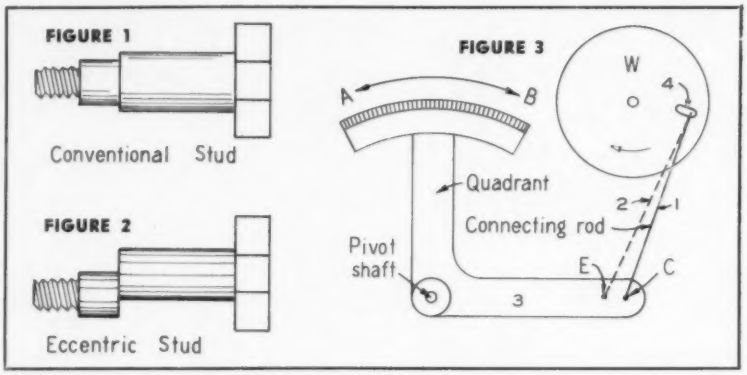
CONTRIBUTOR No. 1206

Stud increases knitting cylinder reciprocation

THE EDITORS:

The arc of reciprocation of a cylinder in a circular knitting machine is generally determined by the length of throw on the quadrant gear (A-B Fig. 3). Usually there will remain at the front and rear of this gear a number of teeth which are not used for this purpose, the gear having been made larger than necessary.

This is true even when the maximum arc is obtained by moving the upper stud to the outer extremity on the driving wheel (W at point 4, Fig. 3) and using the conventional lower stud (Fig. 1) located in hole at C, Fig. 3.



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THE ROTARY UNION* A precision mechanical rotating seal which requires no mechanical maintenance. It is self-aligning and self-adjusting. Unique siphon support prevents loosening, breaking, or falling off of siphon pipe.

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To prevent lacing, overlap, close selections, or to provide adequate group spacing, or additional selectivity, more than the conventional arc may be required.

To obtain this, first the connecting rod will have to be moved to the outer extremity on the driving wheel as illustrated at 4, Fig. 3. With the conventional quadrant stud located at C on the quadrant arm 3, the centerline of the connecting rod will be as represented by line 1, Fig. 3.

However, by removing the conventional stud (Fig. 1) from arm 3, Fig. 3, and replacing it with one which can be turned out on a shop lathe as represented in Fig. 2, the eccentric may be turned so that the centerline of the connecting rod will follow dotted line 2, thus shortening the quadrant arm 3 leverage and increasing the throw of the gear segment A-B, and increasing the arc of reciprocation.

The desired eccentric setting is secured by tightening the lock screw provided on the quadrant arm, thus preventing the stud from turning to an undesirable setting.

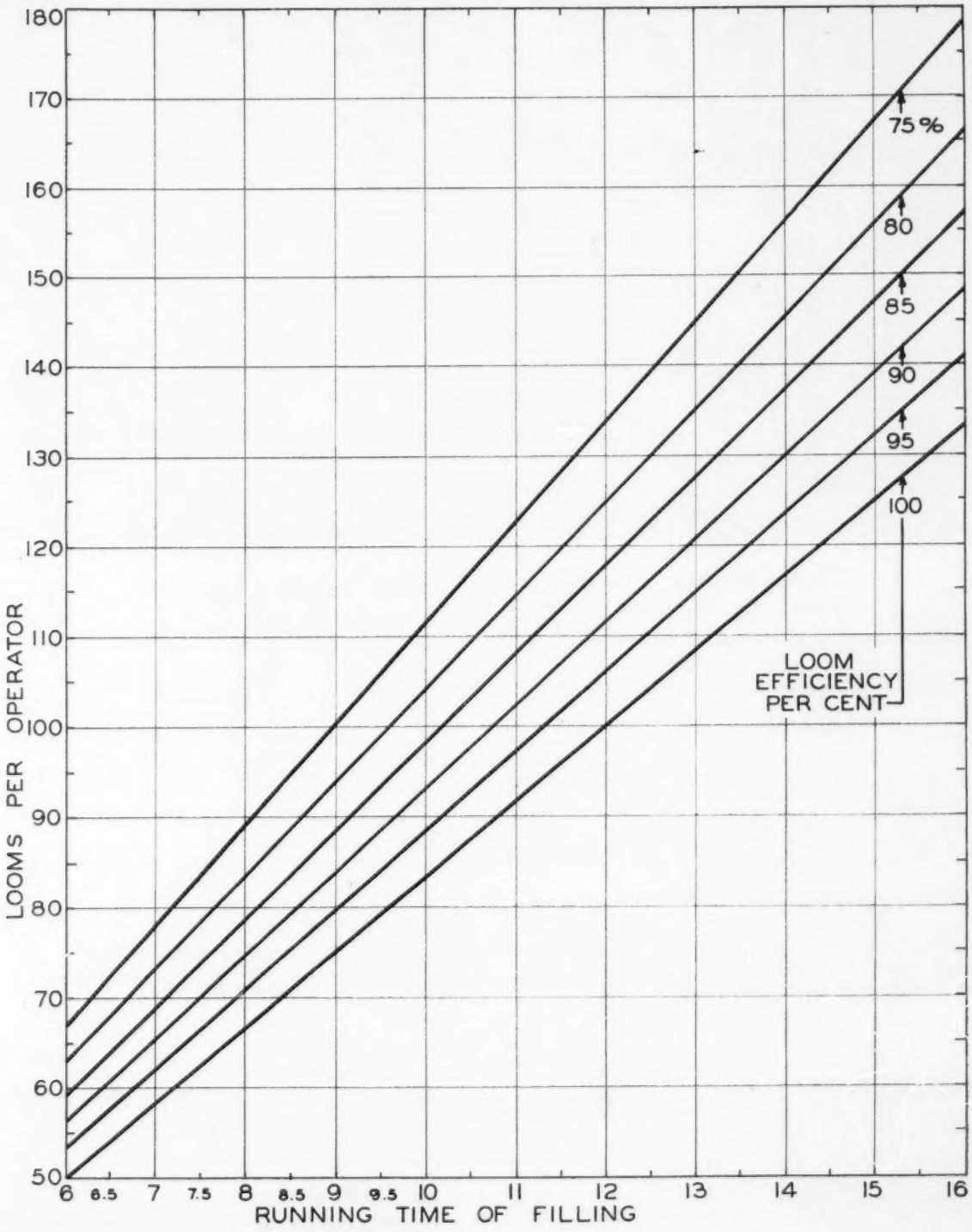
CONTRIBUTOR No. 1198

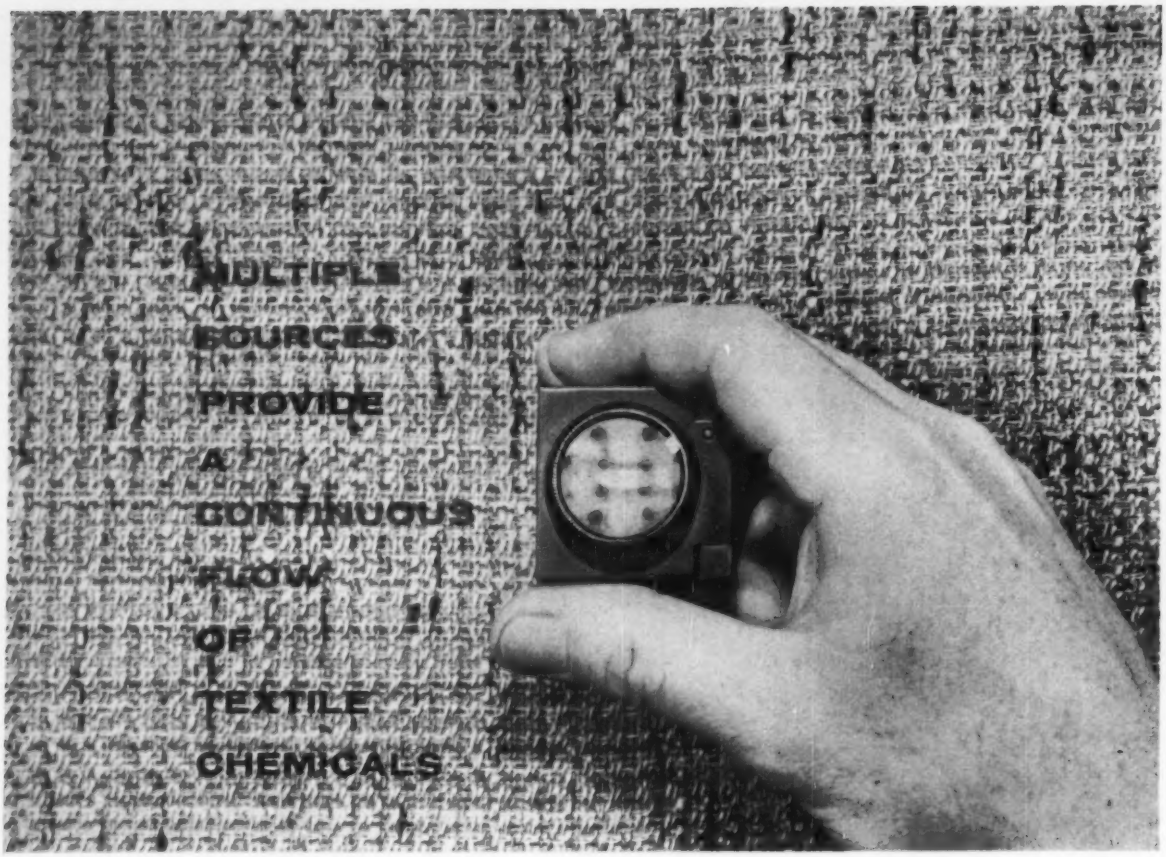
Consult this chart for battery filler assignments

THE EDITORS:

This chart is based on 500 bobbins per hour but can work for a different base. For instance, 800 per hour will be 1.6 times as many looms as indicated (800/500). **Given:** 9 minutes filling running time. **To Find:** looms per battery filler. Find point where 9-minute line crosses heavy 95% loom efficiency line and read off 80 looms to left.

CONTRIBUTOR No. 1220





Carbon Disulfide, Caustic Soda, Sodium Sulfhydrate (Sodium Hydrosulfide) and Sulfuric Acid are in constant demand.

It has long been Stauffer policy to provide these essential textile chemicals in a steady stream.

Stauffer plants in Virginia, Tennessee, Pennsylvania, Ohio, Western New York and Alabama are the chief sources for the Textile Industry.

A traffic department of professional skill maintains daily contact with the movement of chemicals by truck, tank car and barge.

Top quality chemicals, tremendous capacity, multiple sources, skilled and conscientious traffic control have made us many satisfied customers in the Textile Industry.

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Especially, we'd like to hear from people who can utilize Stauffer's Technical Service on handling, safety and materials of construction for these important textile chemicals. Stauffer is the country's leading producer of Carbon Disulfide, one of the largest producers of Sulfuric Acid and Sodium Sulfhydrate, and a major producer of Caustic Soda.

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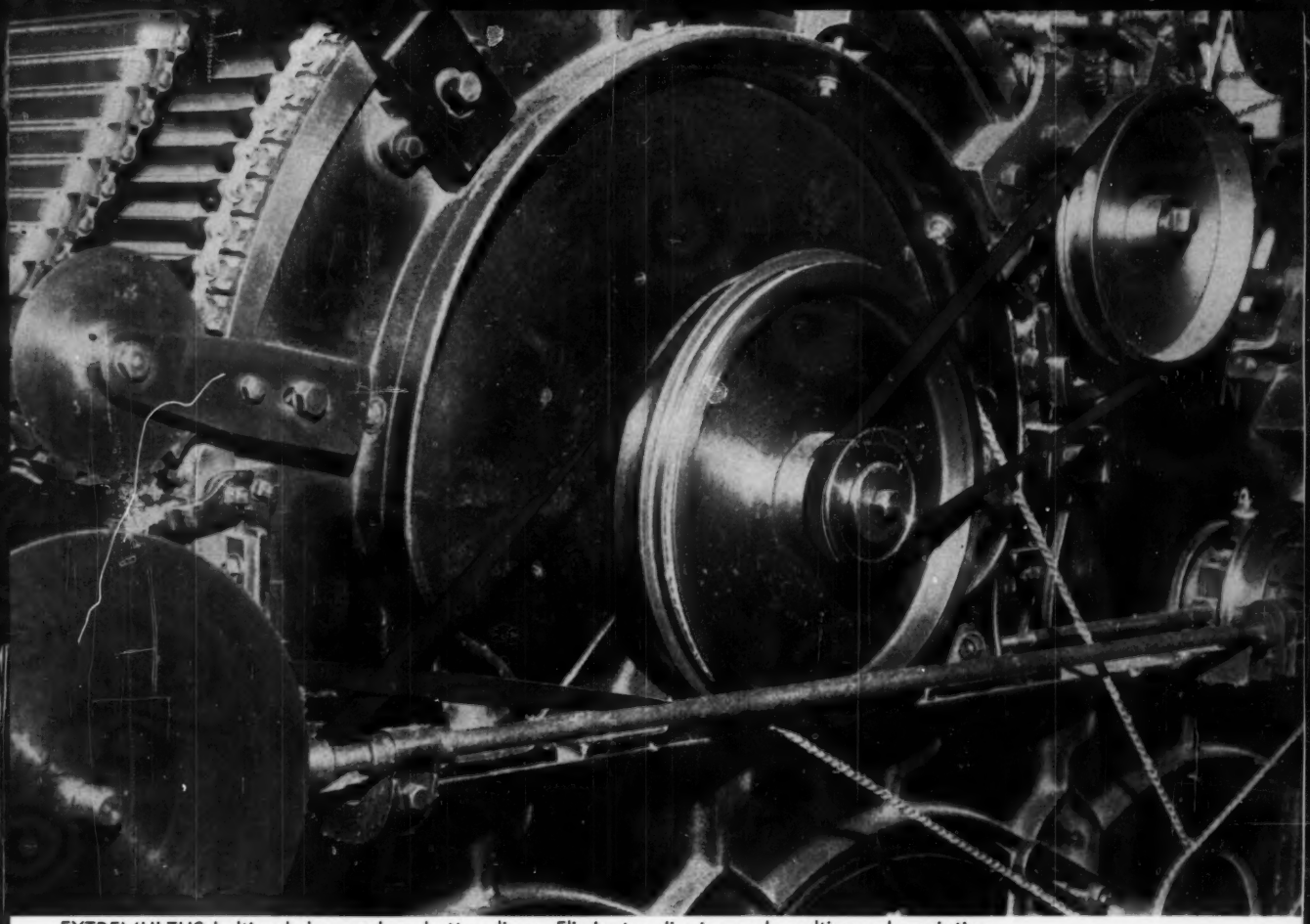

EXTREMULTUS belting helps produce better sliver. Eliminates slipping and resulting web variation.

for increased textile mill efficiency

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NAME .....
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COMPANY .....
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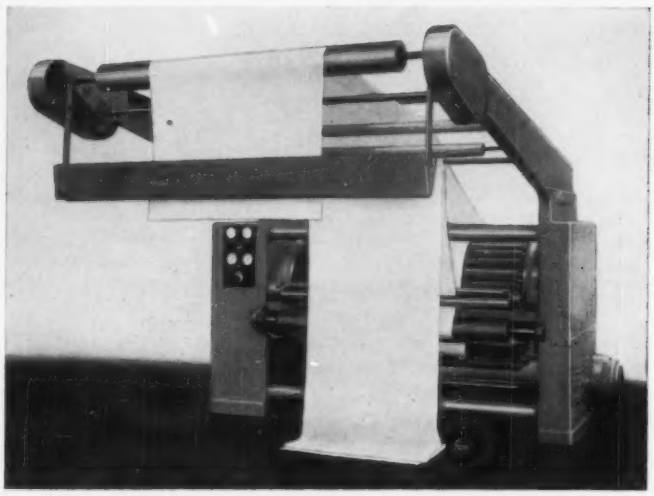
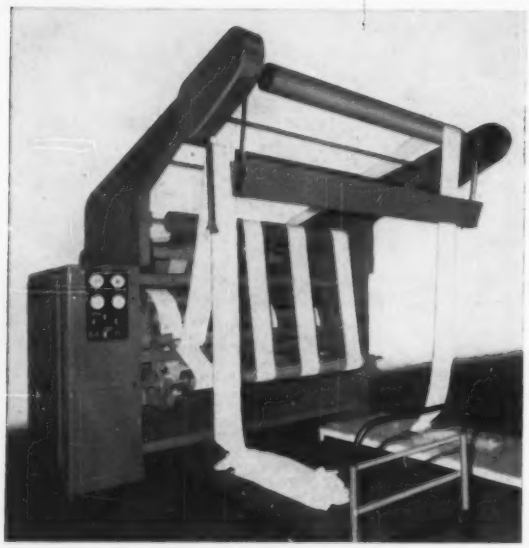
A Gessner Hi-Torc Combination Knit Goods Napper sets production records and does the work of two different types of nappers

Mills napping flat knits such as nylon, rayon and orlon loop fabrics, or synthetics such as orlon interlocks and nylon tricots on their Hi-Torc Combination Knit Goods Nappers, are getting up to 4½ and 5 times the production of former nappers.



Double Acting Hi-Torc Combination Knit Goods Napper



Hi-Torc Napper with Turners for Tubular Knit Goods

The versatility of the Combination Hi-Torc, being able to change from a standard knit goods napper to a standard double acting napper, with only three man-hours of work, gives a mill the profitable advantage of finishing any fabric with a minimum of napping equipment. The Combination Hi-Torc owner stands ready to nap whatever fabrics the market demands, at lower cost and with less idle napping machine time.

May we give you some specific examples?

Southern Representative:
Richard A. Herard , 222 Piedmont Bldg., Greensboro, N. C.

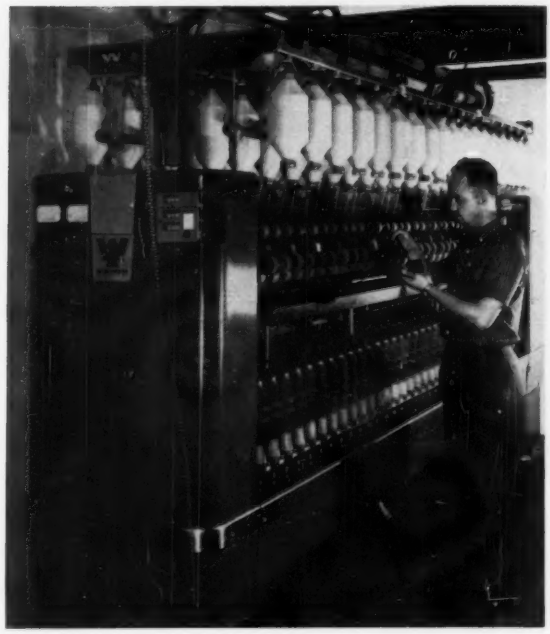
Western Representative:
E. G. Paules & Co., 1762 West Vernon Ave , Los Angeles, California

Canadian Representative:
W. J. Westaway, Montreal, Quebec; Hamilton, Ontario

DAVID GESSNER CO.
WORCESTER, MASS.

NEW PRODUCT PARADE

Please note: Claims made in all of these announcements of new developments are of necessity based upon information furnished by the respective suppliers.—The Editors.



Frame ups worsted-type yarn production 20-30%

Advantages provided by a new American system spinning frame, called the "Piedmont KW," are higher production speeds, larger packages, and output of high quality worsted type yarns of wool, man-made fibers, and blends of these. An adaptation of the Whitin Piedmont cotton spinning frame, the new machine utilizes the Whitin Long-Draft two-apron system and a new top arm and weighting arrangement.

The frame is only 27" wide and features streamlined design, individual side-shaft spindle drive, straight line spinning, and two balloon control rings. All gearing is enclosed in the head end, and the machine has a built in system for waste removal and also for dispersing motor heat from the frame. The top arm is equipped with internal pre-calibrated springs for supplying weight to the top roll.

Instantaneous control of ratch or spread between the middle and back roll is also available. Maximum ratch is 9½". This drafting arrangement will handle fibers from 1½" to 8¾" with appropriate ratch settings and roll diameters.

Normal gauges will be 4" to 4½", and ring sizes can be supplied from 1½" to 3½" depending upon the gauge of the frame. Traverses up to 11" may be used.

Whitin Machine Works, Whitinsville, Mass.

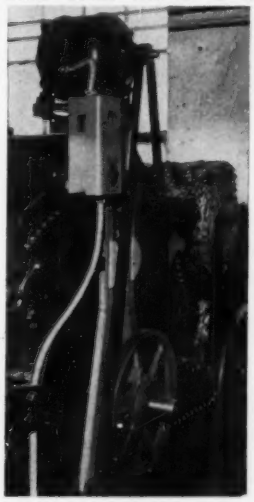
Do you want more data? Write ◂ or use card on page 167; list M-101

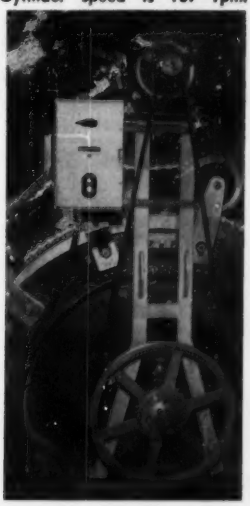
Compact V-belt drive has many mill applications

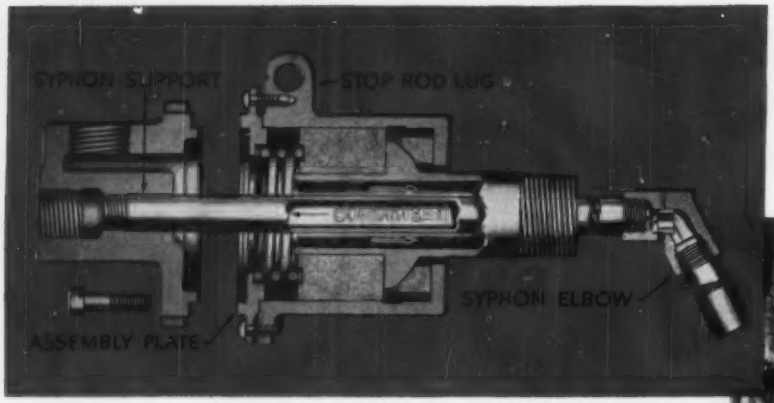
Up to 50 per cent less space is required for the Gates Super HC V-Belt Drive which may be used on cotton cards and a number of other textile processing machines. Low initial cost and low belt replacement cost are other advantages. Also, constant speed of driven unit is assured.

Availability of this compact multiple V-belt drive is the result of development of a new high capacity industrial V-belt which provides up to three times the horsepower-carrying capacity in the same space. Cross-section dimensions are up to 50 per cent smaller. Narrower belt top width and groove spacing reduce sheave face widths 30

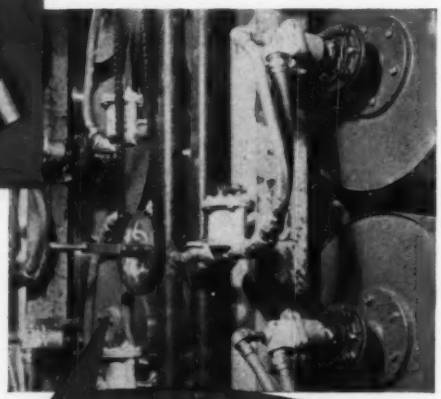
The Super HC V-belt drive used on this card consists of: (1) a 3-V groove, 2.65" O.D. sheave on the 1½ hp, 1190 rpm motor; a 3-V groove, 19" O.D. sheave on the cylinder; and three 3-V 1250 belts. Center distance is 40.8". Cylinder speed is 167 rpm.







TYPE S-B2P Johnson Joint with Syphon Elbow. This is a completely self-supporting unit; the lug shown on body is for simple stop rod to keep joints from turning. Installation view shows these joints installed on dry cans.



These are the ones to use... { For 23" dia. Dry Cans and 30" dia. Slasher Cylinders

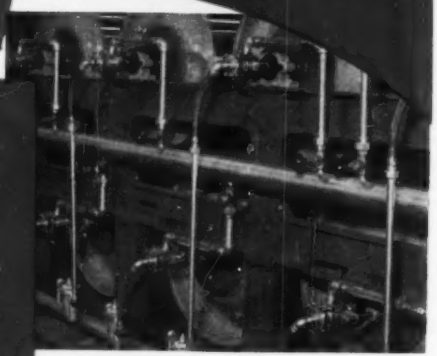
JOHNSON *Rotary Pressure* JOINTS with JOHNSON SYPHON ELBOWS

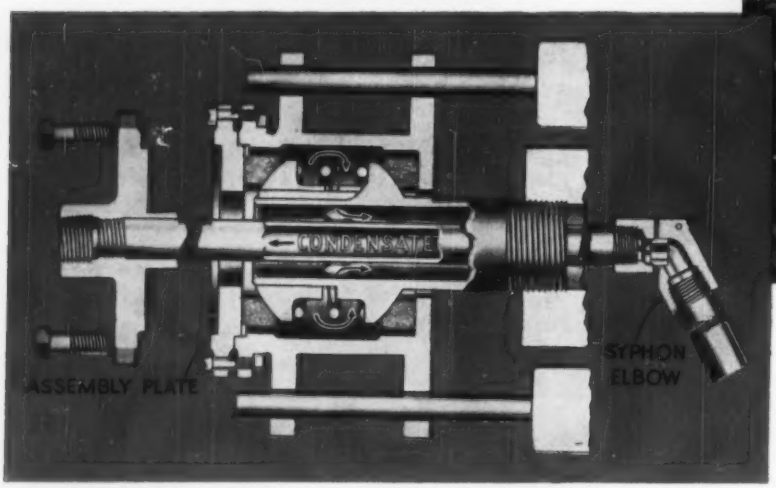
These two types of Johnson Joints have proved particularly suited for service on the newer 23" diameter Dry Cans and 30" diameter Slasher Cylinders. The Type S is completely self-supporting; the Type LJ is rod-supported from bosses provided by machinery manufacturers. Both types are completely packless, need no lubrication or adjustment.

Pictured with each joint is the Johnson Syphon Elbow, successor to the unwieldy curved syphon pipe. It hinges to pass right through the joint, seats of its own weight when in position, permits the use of two simple straight pipes for the syphon line. Special assembly plate is provided on joints so the head and syphon pipe can be removed without disassembling the joint.

Here's our offer—We will gladly furnish a pair of Johnson Joints for 90-day trial in your own mill, without cost or obligation to you. There are Johnson Joints for all operating conditions.

Write for full information





TYPE L-JSP Johnson Joint with Syphon Elbow. Has lugs on body for support rods, which carry all weight of body and connections, permit rotating assembly to "float" freely inside. Steam inlet is in side of body as shown in installation view of joints on slasher cylinders.

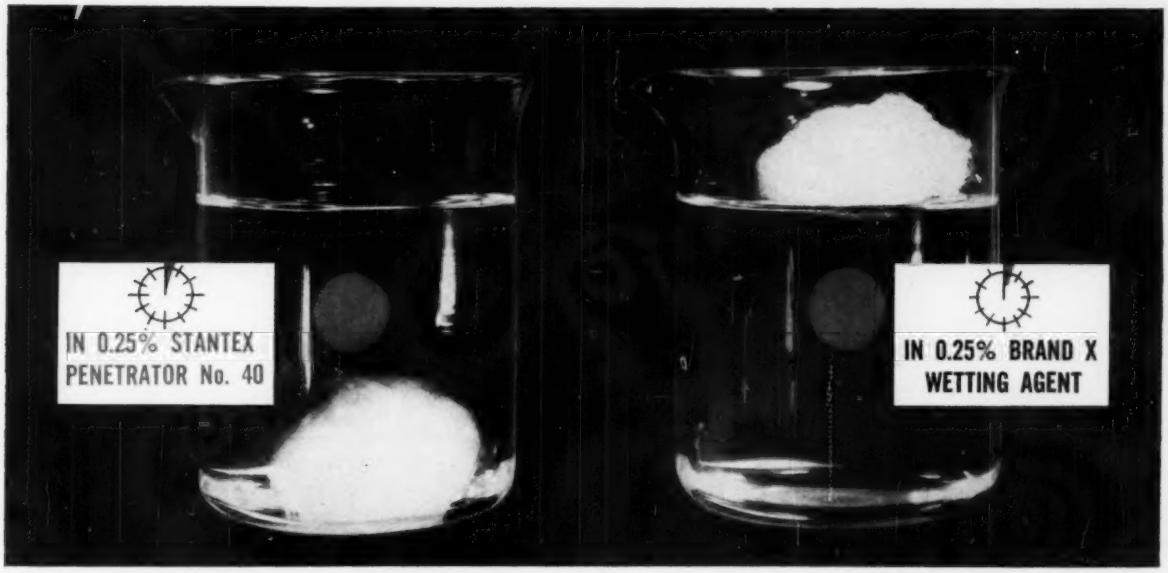
THE JOHNSON CORPORATION

815 Wood Street, Three Rivers, Michigan

Rotary Pressure Joints • Direct Operated Solenoid Valves

FOR THE FASTEST WETTING ACTION STANTEX PENETRATOR No. 40

ILLUSTRATION: 3-SECOND COTTON WETTING TEST



Duplicate the above test and prove to yourself that Stantex Penetrator No. 40 has much more wetting power than even the best of its rivals. A 1% solution of Stantex Penetrator No. 40, based on the weight of the yarn, is enough to ensure perfectly even dyeing of skeins, beams and packages with vat or direct colors. It leaves the yarn so absorbent that warp size is taken up easily. Cotton yarns can often be dyed without boil-off.

Stantex Penetrator No. 40 added to the bichromate liquor in the dyeing of vat and sulphur colors on piece goods gives bright, level shades, and avoids harshness without the use of softening oils.

Send for your sample of Stantex Penetrator No. 40 and test it for yourself.

STANDARD CHEMICAL PRODUCTS, INC.

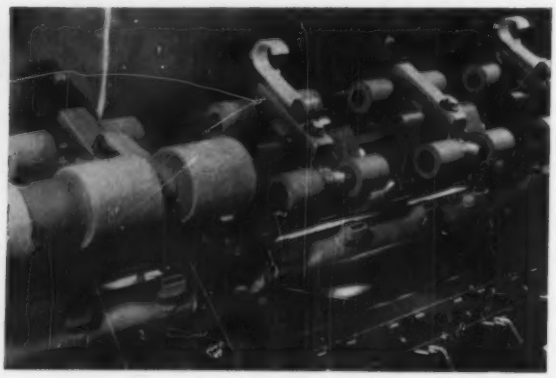
HOBOKEN, N. J. • CHARLOTTE, N. C.

per cent to 50 per cent which in turn lessens bearing loads. Smaller diameter sheaves and shorter center distances may often be used.

The Gates Rubber Co. Sales Div., Inc., 999 S. Broadway, Denver 17, Colo.

Do you want more data? Write ◆ or use card on page 167; list N-102

Short apron changeover offers good fiber control



A completely anti-friction drafting changeover that may be applied to either Roth or Casablanca type spinning frames for use on cotton or short staple synthetics is now available from Saco-Lowell Shops as a result of the firm's acquisition of rights to sell and service spinning and roving drafting equipment manufactured by Machinecraft, Inc., of Whitman, Mass.

Designated Saco-Lowell "Cleanguide" Drafting Changeovers, the units provide the following advantages:

1. Space between the top and bottom nose bars or tensors may be altered; thus, better control of fibers is provided, breaking strength is increased, and end breakage is reduced as much as 50 per cent.

2. The open design eliminates the usual type cradle sizes and allows easy cleaning either by roll pickers or by compressed air.

3. Oiling is unnecessary; the only lubrication required is regreasing of the Climax ball bearing front top roll every 2½ years.

Saco-Lowell Shops, Textile Machinery Div., Easley, S. C.

Do you want more data? Write ◆ or use card on page 167; list N-103

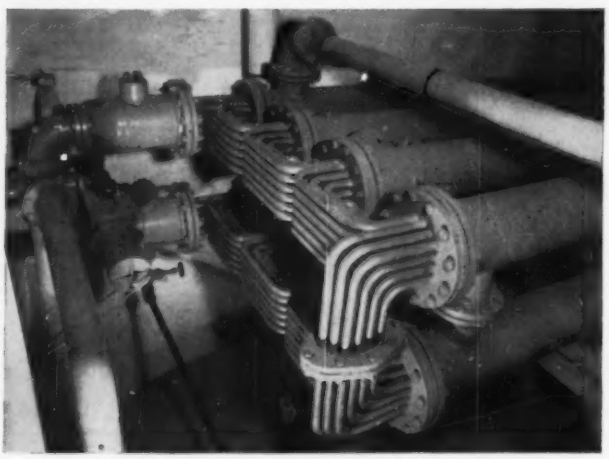
How to make better looking seamless stockings

Improved over-all appearance of ladies' seamless stockings is the result when the circular machines on which they are produced are equipped with the H.N.S.K. attachment. Consisting mainly of a sinker cap equipped with special sinkers, the attachment assures evenness of stitches throughout the stocking.

Other benefits to be derived from this stitch uniformity are that it eases the problems of sizing and dyeing the stocking and provides savings in time and yarn.

When knitting hosiery with the attachment, an accurate

MAKE YOUR BOILER ONE THIRD LARGER WHILE FEEDING IT ONE THIRD LESS FUEL



Ludell-Bready Systems of Heat Recovery turn waste into profit by reducing steam demand and fuel consumption through reusing heat in waste water.

A Ludell-Bready System gives you . . .

CONTINUOUS MAXIMUM HEAT RECOVERY • PEAK EFFICIENCY • AUTOMATIC SELF-CLEANING
GUARANTEED TEMPERATURE RISE

Let us measure your plant for savings. Write today.

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MANUFACTURERS OF BREADY SYSTEMS OF HEAT RECOVERY AND HOT WATER HEATING
• WATER HEATERS • STORAGE TANKS • WHEELER SELF-UNLOADING WASHER

control of the special sinkers is assured by the enclosed sinker cam race located in the sinker cap. This sinker cam race acts on the sinker butt and accurately controls both the outward and inward motion of the sinkers. Three objectives are obtained:

(1) The special sinkers are consistent in their movements, neither overthrowing nor undershooting their settings;

(2) The stitch can be accurately measured over the back of the sinker, influenced only by the needle action;

(3) The sinking action is accomplished by pressing on a sinker wale that is already formed.

The Wildman Jacquard Co., Hemphill Banner Div., 1210 Stanbridge St., Norristown, Pa.

Do you want more data? Write ◂ or use card on page 167; list N-104

ABOVE: View of card room in cotton mill which was built soon after World War II, showing an earlier model of Bustribution plug-in bus duct along the wall near the ceiling (black arrow points to it). BELOW: An electrician tightens the single bolt which connects the 10-foot sections of the new XL Bustribution duct.

How to cut cost of moving or adding equipment

A new system for distributing electricity in textile mills and other industrial plants is exceptionally flexible, easy to install, and features plug-in power take-offs at any place along the line without disconnecting the main power line. With this new power source installation costs are lower when it is necessary to rearrange equipment or put in more machinery.

Designated the XL Bustribution Duct System, it utilizes plug-in bus duct which has been redesigned to provide the following: (1) safety for operating personnel; (2) ability to withstand unusual electrical and mechanical stresses which might otherwise destroy it, based

LONGER, HEAVIER LAPS WITH THE

LONG **PNEUMATIC LAP CONTROL SYSTEM***

These systems may be applied to any existing picker. Positive, controlled air pressure on pin ends deliver uniform pressure on laps forming on calender stack rolls —from start-up to doffing. Equally effective with both cotton and synthetics. Radical fluctuations common to old deadweight systems are eliminated. May be applied to calender rolls, fluted rolls or both. Waste at ends virtually non-existant. Maintenence costs drastically reduced—up to 32 moving parts eliminated.

PROVEN ON THE JOB!

More than 350 installations have proven the efficiency of the LONG Lap Control System by consistently producing longer, heavier, higher quality laps. Many mills are producing laps up to 75#, with smaller diameters, and are handling such laps manually. Other mills with conveying equipment are making 88# laps.

*Patented U. S. Pat. Off.; Foreign patents applied for.

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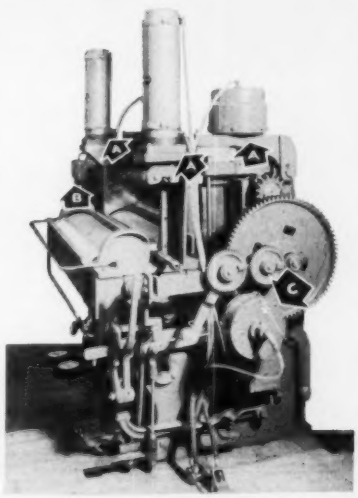


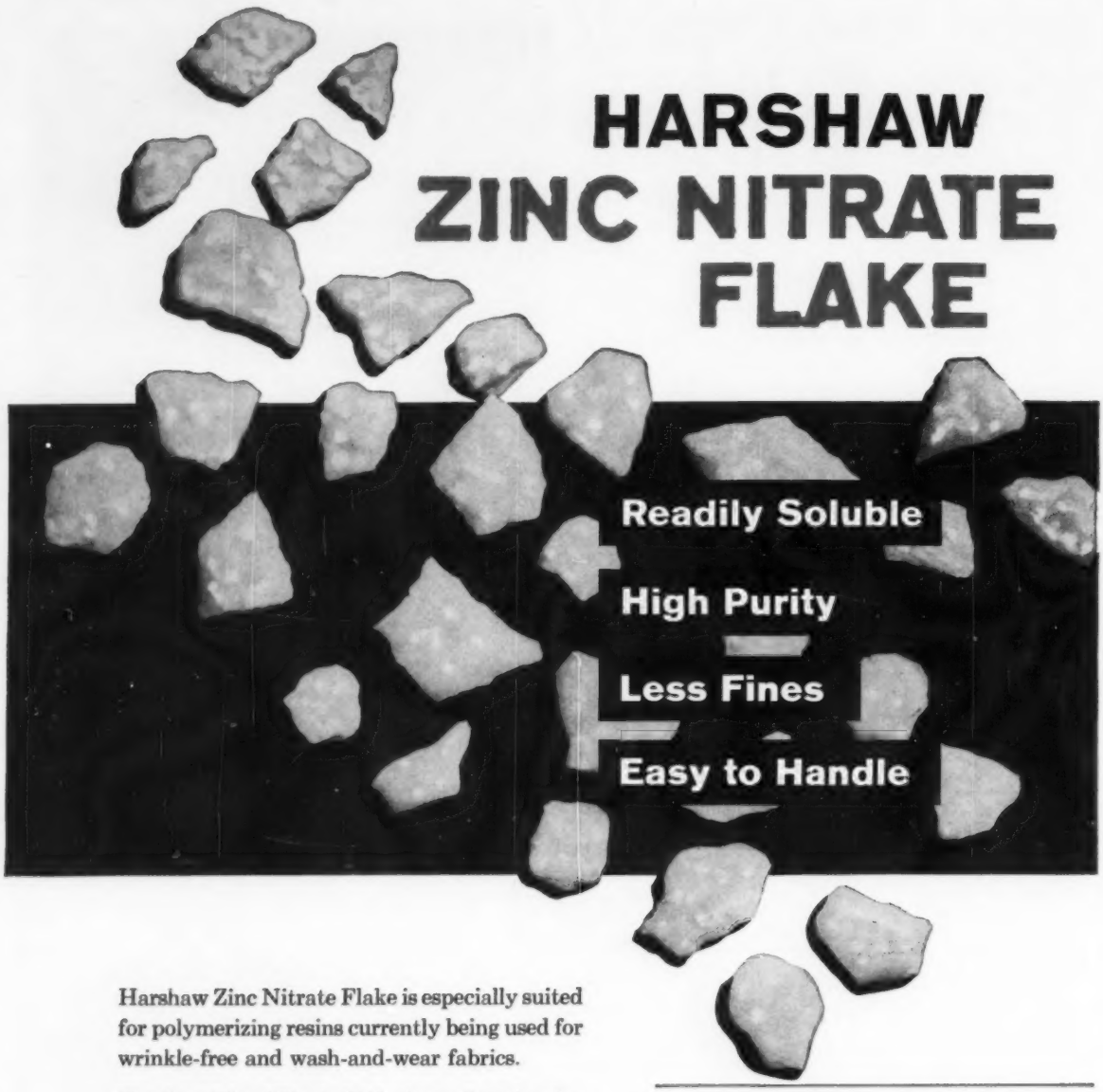
Photo above shows (A) Long Lap Control System installed on picker. (B) L&H Pneumatic Lap Pin Pusher. (3) Auto-Pneumatic Picker clutch.

LIVINGSTON & HAVEN, Inc.

P. O. BOX 808-T
CHARLESTON, SOUTH CAROLINA

Representatives in all major textile areas.
Address foreign inquiries to
PLATT BROS. (SALES), LTD.,
Oldham, England

HARSHAW ZINC NITRATE FLAKE



Harshaw Zinc Nitrate Flake is especially suited for polymerizing resins currently being used for wrinkle-free and wash-and-wear fabrics.

Harshaw Zinc Nitrate Flake is produced under rigid control assuring the user of uniform resin catalysis at all times.

Harshaw Zinc Nitrate Flake measures about 1/32" thick by 1/2" long, thereby reducing dust and fines to absolute minumum.

Packed in 300 or 100 pound Leverpak drums with polyethylene liner, Harshaw Zinc Nitrate Flake is available for immediate shipment. Write for samples and prices.

TYPICAL AVERAGE ANALYSIS:	
Assay as $Zn(NO_3)_2$	72.5%
Zn	24.6%
Fe	0.001%
Pb	0.003%
pH of 5% solution	5.2
Insol. in 1% Nitric Acid Solution	0.001%

THE HARSHAW CHEMICAL CO.
1945 E. 97th Street, Cleveland 6, Ohio

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on present and future available short circuit values; (3) the lowest possible voltage drop practicable; (4) choice of aluminum or copper bus bars; (5) a simplified joint with a minimum number of bolts to effect maximum installation economy and dead front maintenance.

This new XL bus duct, which is Underwriter's Laboratories listed, is available in convenient 10-foot lengths for easy handling and installation. Elbow units for turns in the line and short end-pieces may also be obtained.

Bulldog Electric Products Div., I T E Circuit Breaker Co., Box 177, Detroit 32, Mich.

Do you want more data? Write ◆ or use card on page 167; list N-105

Removes fine trash from cotton

A new cotton cleaning machine, called the "Cen-Tri-Vac," removes the tiny pieces of stems, bolls, leaves, etc., which are usually left in the stock by conventional opening equipment.

With the new machine in an opening line following the Cen-Tennial Opener-Cleaner, the quality of yarns and fabrics produced is improved. Also, the unit will permit a mill to continue making fabrics of the same quality from cotton which is less expensive because of higher foreign matter content.

A combination of ciliary movement and vacuum is utilized by the machine to remove the fine, peppery trash. There are no metal beaters.

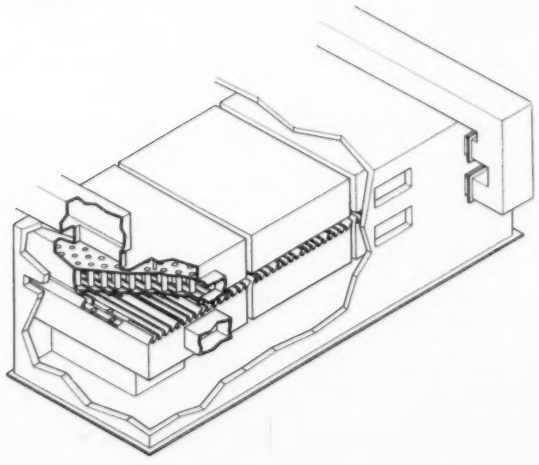
Cen-Tennial Cotton Gin Co., P. O. Box 708, Columbus, Ga.

Do you want more data? Write ◆ or use card on page 167; list N-106

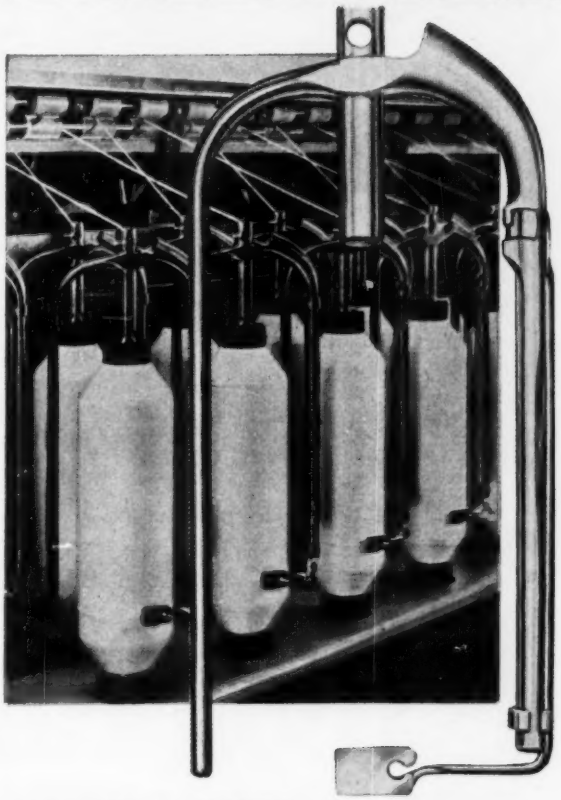
Compact hot-air unit dries fabrics faster

The Ross "RD" Dryer for applications which require pre-dryers, dry cans, or tenters utilizes high velocity air and controlled temperatures to greatly increase drying capacity and reduce operating costs. The shorter length

Fabric floats through the machine on the air which dries it. Note in this cutaway drawing how nozzles are slanted so air will move goods forward. In one installation which normally would require a 90-foot-long oven, a 12-foot-long RD dryer is performing satisfactorily.



15 to 25% INCREASE
IN WEIGHT OF ROVING—
WILL PAY FOR ITSELF IN
7 to 24 MONTHS



MAIER PRIMA FLYERS

HEAVY CONSTRUCTION OF SHOULDERS . . . prevents spreading — allows you to extend width of flyer to the maximum permissable by the gauge of your frame.

HIGH POLISH . . . especially in throat and hollow leg—prevents "eye browing" and insures high quality roving.

NOTCHED THROAT . . . puts false twist into roving back to the front roll—preventing excessive ends down.

DESIGN OF DROP PRESSER . . . the gentle angle of the roving as it leaves the hollow leg and starts to wind around the presser finger prevents the breaking away of fibers from the roving.

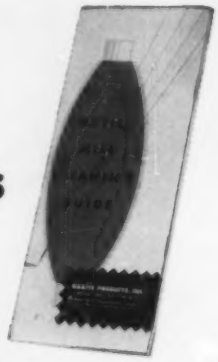
DYNAMICALLY BALANCED . . . every flyer is balanced at maximum operating speed within a tolerance of ± 3 grams.

HARD CHROME PLATED FINISH . . . special anti-rust and anti-corrosive finish that will withstand corrosive action of synthetic fibers.

Location of Slot in eye of the presser finger makes threading almost automatic.

TEXTILE SUPPLIES W D USED MACHINERY
Watson & Desmond
P.O. BOX 1954 • CHARLOTTE, NORTH CAROLINA

Here's a Thinking Man's Booklet— FREE



This 32-page Mill Maintenance Cleaning Guide provides valuable information for all thinking textile men vitally concerned with the necessity of reducing operating expenses.

How this booklet can help you:

This illustrated booklet describes maintenance cleaning as it is being done in many large textile mills today. Data is based on plant-proved procedures streamlined to give the most efficient cleaning at the lowest possible cost.

Indexed for quick reference, booklet describes how to speed up and simplify such jobs as:

HUMIDIFIER MAINTENANCE
slime and scale prevention
filter cleaning
rotor cleaning

MACHINERY MAINTENANCE
cleaning heddles, harnesses
cleaning looms, reeds
rust prevention

PLANT MAINTENANCE
floor cleaning
paint stripping
cleaning aluminum forms

WASHING OPERATIONS
tar removal
kier boiling
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SCIENCE

Technical Service Representatives in Principal Cities of U. S. and Canada

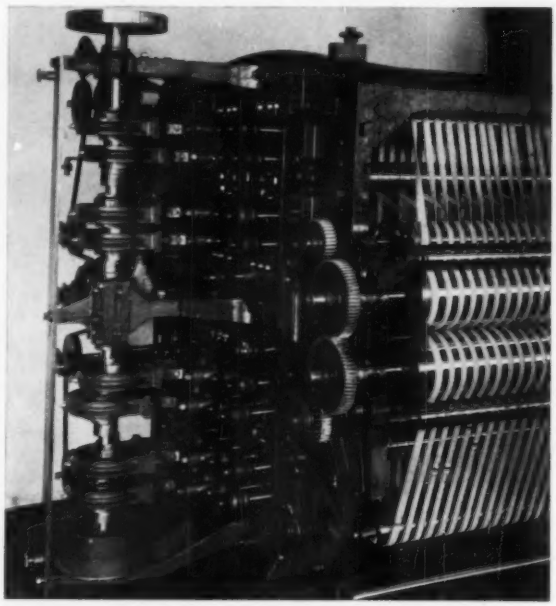
of the unit results in saving floor space and reduced maintenance.

Fabric is both dried and conveyed through this straight pass dryer by heated air blown through high velocity nozzles. Consequently, need for a mechanical conveyor is eliminated and an unmarred finish is assured.

J. O. Ross Engineering, Div. Midland-Ross Corp., 730 Third Ave., New York 17, N. Y.

Do you want more data? Write ◂ or use card on page 167; list N-107

Tape condenser has heavy-duty eccentric



Now available for replacement of tape condensers on existing woolen cards and as standard equipment on new cards is the Davis & Furber Model L-5A Tape Condenser featuring a heavy duty eccentric. It provides higher linear rubbing action on all stocks and increases production since less downtime is required for maintenance.

The improved performance of this condenser is due to the stronger construction throughout the eccentric, including anti-friction bearings, housing, and connecting linkages. A graduated dial is provided for eccentric stroke length adjustment up to 1½".

Davis & Furber Machine Co., North Andover, Mass.

Do you want more data? Write ◂ or use card on page 167; list N-108

Knits deep-pile fabrics that may be piece-dyed

A wide range of deep-pile fabrics that may be readily piece-dyed can be produced at the rate of about 10 yards per feed per eight-hour day on a circular knitting machine recently placed on the market.

Designated the Model LLP (abbreviation for locked loop pile), the machine operates on a principle that does not require sliver for the production of deep-pile automotive and commercial carpeting, upholstery fabrics, and simulated fur fabrics. Since goods may be piece-dyed without difficulty, there is no need for large stocks of dyed yarns.

Initially, a 7-cut, 30" diameter machine is being mar-

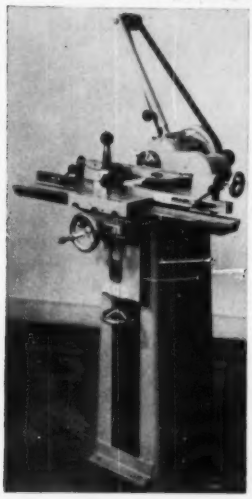
keted, with provisions for 10 and/or 20 feeds, depending on the nature of the end product required. Later other machine cuts and diameters will be made available.

Scott & Williams, Inc., Laconia, N. H.

Do you want more data? Write ☛ or use card on page 167; list N-109

Equipment for extending shuttle life

Two shuttle repairing machines which are manufactured in Holland are now available through an agent in the United States: (1) a combination shuttle truing and tip grinding and polishing machine and (2) a tip polishing and grinding machine.



The multi-purpose machine on which both shuttle truing and tip polishing are performed is known as the AGO Recorrector. Designed for simple, efficient operation with quick set-up of any type of shuttle, the machine is furnished with one cutter head which is mounted directly on the motor shaft. The shuttle tip polishing and grinding section of the machine is powered by the same motor.

The Tip-Top shuttle tip grinding and polishing machine is a self-contained unit designed for bench use. Two rubber friction rollers spin the shuttle against an abrasive belt. Distance betweer rollers and belt is adjustable to accommodate shuttles of different sizes. For tip grinding, the shuttle point is inserted between rollers and belt.

Lignostone Dept., Techno Exports, P. O. Box 65, Gracie Sta., New York 28, N. Y.

Do you want more data? Write ☛ or use card on page 167; list N-110

New products for warp sizing

A liquid size, Seyco 7171, does not foam or stick to the cylinders of the slasher, disperses quite readily in a cold water starch slurry, acts as a softener and plasticizer for the starch film, and serves as a lubricant to appreciably improve weaving operations.

Lighter, brighter warps are produced when Seyco 23 WH is used in warp sizing with starches or starch-based gums, a particularly desirable result for goods that are sold in the grey. Containing an optical bleaching agent, this additive gives a tougher and more flexible film and

"H-W"® conditioner

The best way to assure plus value and quality

in

COTTON SALES YARN

Cotton Sales Yarn being conditioned at one of the better southern mills.

THE INDUSTRIAL DRYER CORPORATION

STAMFORD, CONNECTICUT

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Only Emulsifiable AC® Polyethylene can create "Wash-and-Wear" finishes that... ★ Keep whites white ★ Do not retain chlorine ★ Resist scorching ★ Improve crease resistance

Now—and for the first time—*permanent* finishes for wash-and-wears are available that keep whites *white*, are nonchlorine-retentive, resist scorching at elevated temperatures, and add a new measure of crease resistance.

Already widely accepted by the textile industry, the new emulsions containing A-C Polyethylene benefit every type of synthetic and natural fiber in some way over other finishes. A-C Polyethylene improves "hand"—and in many cases the tear strength of the A-C Polyethylene-finished material is superior to the untreated fabrics.

In addition to better "hand" and tear strength, A-C Polyethylene-formulated finishes improve crease and abrasion resistance and improve sewability; lightfastness or dye shades are not affected.

Write today for more information. Why not find out right now about this new advance in textile finishing? Your textile chemical supplier either has an A-C Polyethylene finish on hand or can formulate one for your specific needs. (We are manufacturers of resins, not finishing emulsions.) Or write to us direct for complete information.

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New York 6, N. Y.
National Distribution Warehousing in Principal Cities

imparts lubricity to yarns.

For sizing Dacron and nylon spun yarn warps and warps from yarns that are blends of these fibers, Seycofilm E is available. The product is used as an additive to modified starch gums to form tough, flexible films with strong adhesive properties. A liquid product that is easy to handle, it is compatible with all types of starches and starch gums and is readily desizable.

Seydel-Woolley & Co., 748 Rice St., N. W., Atlanta, Ga.

Do you want more data? Write ◆ or use card on page 167; list N-111

Gate tension improves cone winding operation

Production of yarn of higher quality, formation of better packages, better over-all controlled tension let-off, and constant multiplication factor are advantages to be derived on certain cone winders by use of a new tension gate equipped with Heanium (ceramic) contact fingers.

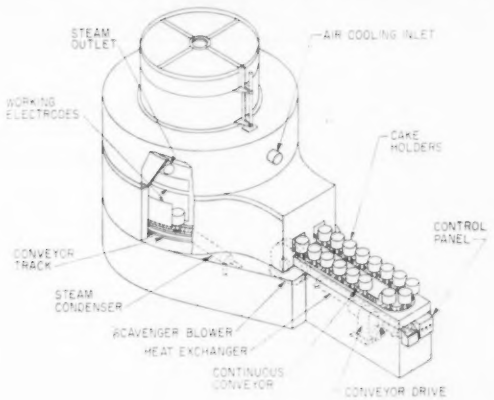
The new gate has only 11 contact fingers. So it allows the yarn to generate angles from one contact finger to the next, which gives the gate a compensating ability, as well as a snubbing action to compensate for uneven conditions from the supply package.

A unique concave face design on the contact fingers gives much better lateral control of the yarn than the conventional flat face, especially toward tip end of the cone or tube.

Heany Industrial Ceramic Corp., P. O. Box 530, New Haven, Conn.

Do you want more data? Write ◆ or use card on page 167; list N-112

Dries package-dyed yarns more quickly, uniformly



Fast and uniform drying of package dyed yarns is provided by the new Thermatool Super Power Dielectric Dryer. On this machine—a combination high frequency oscillator, package conveyor, and heat recovery system—yarns can be dried in minutes with the moisture content controlled so that long periods of storage for moisture regain are not necessary.

The speed with which yarn can be dried on this one-man-operated unit permits the reduction of yarn inventory in mills where the dyed yarn is used for weaving or knitting. In most instances, the cost of the drying operation is less.

After the initial warm-up period, the operator starts

RIDGID Thread Cutting Oils are available in convenient (4 ounce Nu-Clear only), 1 quart, 1 gallon, (2 gallon Nu-Clear only), 5 gallon, 30 gallon and 55 gallon containers.

Tests prove RIDGID® Thread Cutting Oil gives you better threads faster... lengthens die life, too!

Recently a distributor in Atlanta, Georgia investigated a complaint of "bad pipe". Test threads were made in all sizes. Torn threads resulted. Then RIDGID Nu-Clear Thread Cutting Oil was substituted for the oil being used. Perfect threads were obtained every time.

Here, then, is dramatic proof that you need a special purpose thread cutting oil . . . an oil that *cools, speeds metal removal, produces a smooth finish,* and *prevents chips from welding to your dies.*

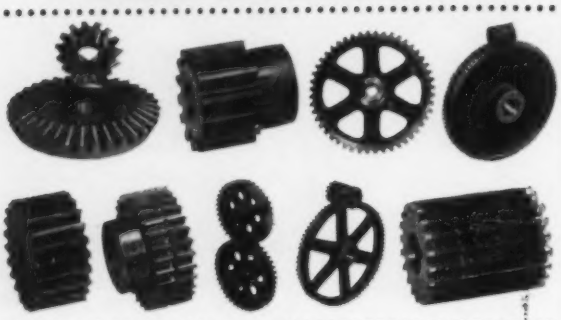
No oil—in its pure state—will perform all these functions. That's why RIDGID Thread Cutting Oils are an exclusive, exactly formulated combination of oils, blended for easier, faster threading . . . longer die life. What's more, these special-purpose RIDGID oils are completely antiseptic . . . no danger of irritation or infection.

Make sure of good threads every time. Order RIDGID Thread Cutting Oil from your Supply House today. Tops for *all* metal cutting . . . you'll want an extra supply for your lathe, drill press and other metal cutting equipment.

RIDGID®

The Ridge Tool Company • Elyria, Ohio, U.S.A.

GEARS TO YOUR SPECIFICATIONS BY
FERGUSON



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  Penetration even for heavy fabrics
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- Four-Bowl Laboratory Padder for sampling
- Chainless Mercerising Machines - flexibility, high production
- Open Width Washing Machine

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and stops the unit by push-button on the yarn package conveyor. The moisture content of the yarn is controlled by the conveyor speed. Normal variations in package weight result in fluctuation of the energy input so as to maintain a constant moisture content.

Close-up photo showing yarn carriers moving between the working electrodes.

Packages to be dried are placed in the holders which are mounted on a continuously moving conveyor which transports them between electrodes inside a heated and insulated doughnut-shaped oven. The vapor, which is formed by the boiling water inside the packages, rises and stratifies in the upper portion of the oven and is later condensed so that the hot water may be used again and thus reduce the cost of the operation. When the packages emerge from the oven, they are dry.

The same principles which are incorporated in this unit can be utilized in the design of equipment to dry continuously moving webs of varying thicknesses.

New Rochelle Tool Corp., New Rochelle, N. Y.

Do you want more data? Write ◂ or use card on page 167; list N-113

Suction cleaning for new Versa-Matic drawing

Mills ordering Versa-Matic drawing frames may now specify that these high production machines be equipped with Pneumafil air suction cleaning.

Design of the vacuum system is such that it does not increase the over-all height of the frame, leaving the top rolls readily accessible for changing settings. Each clearer unit may be quickly removed from within the clearer cover.

Specially designed baffles divert undesirable air blast from underneath the frame. There is no stealing of spinnable fibers due to excess vacuum in the drafting zone.

Saco-Lowell Shops, Textile Machinery Div., Easley, S. C.

Do you want more data? Write ◂ or use card on page 167; list N-114

New yarns

A 15-denier nylon yarn that glistens is being marketed for the manufacture of ladies' stockings for cocktail and evening wear. Called "Du Pont Sparkling Nylon," the yarn may be used on seamless or full-fashioned knitting machines. The sparkle will not wash out, fade, or wear out as it is a structural part of the yarn.

An acrylic fiber with reversible crimp, called "Orlon 21", provides greater elasticity and shape-holding qualities in machine- or hand-knitted sweaters made from yarns spun with it. The reversible crimp, a permanent attribute of the fiber, gives a "liveliness" to the fabric which renews the garment's appearance with every washing and drycleaning. The energy of the recrimping action, as the garment dries, literally "works" the fabric surface to restore its original unmussed appearance.

E. I. du Pont de Nemours & Co., Inc., Textile Fibers Dept., Wilmington 98, Del.

Do you want more data? Write ◂ or use card on page 167; list N-115

New books for mill men

Fundamentals of Woven Structures is a loose-leaf manual used by students of textile design at Lowell Technological Institute. It presents the study of elementary textile design as an approach to and a basis for engineering design of woven textile structures, according to the author, Edward L. Golec. Hence, mill designers may also find it useful as the nucleus for a handbook on fabric structures. In addition to basic information on the more common weaves, the following subjects are dealt with: the deflected float method of designing; effect of ends and picks per inch on design; fabric calculations based on the intersection of one end and one pick; and square constructed, plain weave cotton fabrics (a chart is included). Readily understandable sketches are used throughout, along with actual samples of fabrics and the designs from which they were produced. Lowell Technological Associates, Inc., Lowell Technological Institute, Lowell, Mass. Price $4.50.

How Wool Is Made Into Fabric is the title of a new 23" x 28" chart which illustrates with diagrams and samples the production steps from fleece to fabric for the woolen and worsted systems. In addition, a brief word description of each process is given. Made of stiff paper board with two eyelets at the top for wall mounting, the chart consists of three sections put together with durable cloth tape so that it may be folded to a 10" x 23" size for storage. The chart was designed for use in mills to familiarize new employees and sales personnel with the processes, in schools, and in retail stores. It is available from The Wool Bureau, Inc., 360 Lexington Ave., New York 17, N. Y. Price, $2.00.

Nonwoven Fabrics — An Unbiased Appraisal is a comprehensive study of fabrics produced through bonding individual fibers together by chemical, mechanical, or thermal means. The report is designed to provide a complete, unified picture of the nonwoven fabrics industry of today, and to present an objective preview of the potential problems and opportunities for this field in the future. Included are chapters on: manufacture, finishing and dyeing, fibers, binders, applications, research and development, marketing, and implications for the future. In the appendices to the report are discussions of the patent and secrecy implications in the nonwovens field; as well as listings of patents and companies, a detailed bibliography, index, and glossary of technical terms. Published by Nonwovens Associates, P. O. Box 328, Cambridge 39, Mass. Price, $15.00.

Efficiency and Productivity Tables for Textile Machine Operation contains detailed procedures with examples showing how to set machine assignments for best results, taking into account such factors as work load, production cost, and investment return. Written and published by Thomas F. O'Connor, P. O. Box 3228, University Station, Charlottesville, Va., the loose-leaf book contains 57 pages of tables showing standard machine efficiencies, productivity factors, and work loads under varying machine assignments and work conditions. Price, $25.00 for single copies; $17.50 per copy if two or more are ordered.

A study in the development of a quality control system applicable to the manufacture of knitted outerwear and swimwear has been published by the National Knitted Outerwear Association, 386 Park Ave., South, New York, N. Y. Entitled *Practical Program for Quality Control*, the book is intended as a guide to assist management in achieving a uniformity of quality level in production consistent with the standards adopted by the manufacturer in his original samples.

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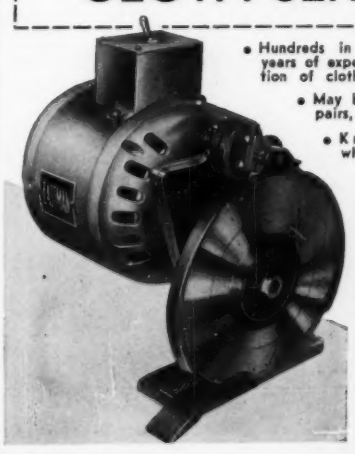

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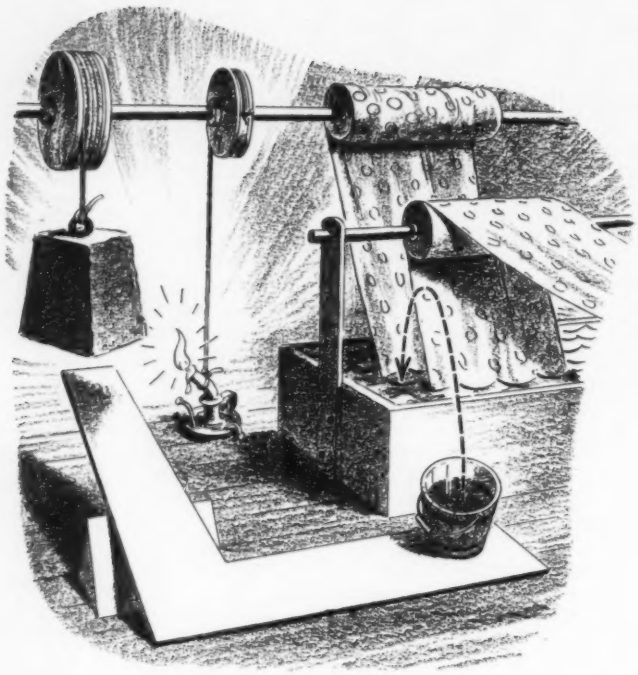

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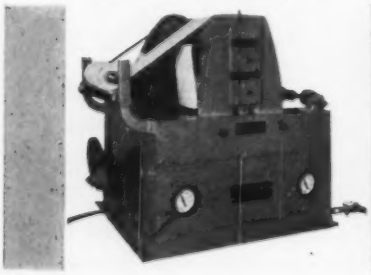

Butterworth Warp Mercerizing Range

New dyes

For more information on one or more of these recently developed dyes, either write directly to the supplier whose name appears in Col. 5, or list the key number in Col. 6 on one of the handy return cards on page 167 and TEXTILE INDUSTRIES *will request the data for you.*

1 Class	2 Name	3 For use on	4 Remarks	5 Supplier	6 Key No.
Basic	Astra Violet 3R Extra	Wool, silk	Particularly recommended because of its economy, this dyestuff produces interesting red shades in combination with Astrazon Orange G.	Verona	N-301
Acid	Levalan Blue FFR	Wool, nylon	Produces brilliant shades of blue with excellent lightfastness; levels very well and is in shade close to the Alizarine Brilliant Blue types but can be dyed with sulfuric acid.	Verona	N-302
Disperse	Polydye Yellow Scarlet Burnt Orange Violet Blue	Polyester, polyamide, acrylic, acetate, and triacetate	May be applied by carrier dyeing techniques or by high-temperature methods in becks, jigs, or pressure equipment; have good exhaustion, pile-on, and leveling properties; applicable to raw stock, tow, yarn, and woven and knitted fabrics; series contains several blues.	Interchemical	N-303
Disperse	Esterophile Light Yellow 2RL Light Yellow 3RLL Light Red RBLL Light Blue BJLL Extra	Polyester	Characterized by extreme brightness, they have outstanding fastness to sublimation and pleating and excellent fastness to: light in pale shades or mixtures; wet treatment (washing, perspiration, etc.); crocking; and drycleaning (trichloroethylene).	Francolor	N-304
Disperse	Foron Yellow Foron Orange Foron Blue Foron Scarlet 3GFL	Polyester	There are three yellows in this series of dyestuffs, and two oranges. Of extremely small particle size, the dyes have "improved" fastness to light, gas fading, perspiration, and crocking; excellent dispersibility, good fiber penetration; and freedom from filtering out in package dyeing.	Sandoz	N-305
Fiber Reactive	Procinyl Yellow Procinyl Orange Procinyl Scarlet Procinyl Blue	Nylon acetate, triacetate, polyesters, and acrylics	Exhibit good leveling, coverage; excellent penetration, and compatibility in admixtures; excellent wet fastness; applied on jigs, in kettles and in pads.	Arnold, Hoffman	N-306
Pigment	Aquaprint Supra Colors and Clears and Reactor	Natural and synthetic fibers and blends	Application by oil-in-water emulsion system; extraordinary fastness to washing and both wet and dry crocking.	Interchemical	N-307
Insoluble Azoic	Metrozol Yellow NG Scarlet N3R Scarlet FNR Red NG Red NR Blue NB	Cellulosics	A series of azoic dyestuffs especially developed for printing applications where neutral aging is necessary; can be developed either with neutral or acid steaming; especially useful in patterns where acid aging is not desirable, i.e., printing alongside fiber reactive dyes or vat colors so whole pattern can be developed by neutral aging.	Metro-Atlantic	N-308
Direct, Developed	Pharmol Brilliant Green AN-160	Cellulosics	A printing azoic that produces brilliant green shades suitable for development by neutral aging; suitable also for resist styles under Aniline Black; possesses excellent lightfastness and is only slightly sensitive to formaldehyde when printed with pigments.	Verona	N-309

(Continued on page 166)

New dyes (Continued from page 165)

1 Class	2 Name	3 For use on	4 Remarks	5 Supplier	6 Key No.
Vat	Calcoloid Direct Black 2R	Wool, silk, and cellulosics	Achieves heavy shades of gray on drills, twills, and poplins; homogenous, does not require development in nitrous acid nor in chlorine; made in double paste and double powder form; may be applied by pad-steam, Williams unit, or pad-jig method; recommended for work clothing, especially; is an economical basis for medium and dark shades; covers immature fiber well, so is particularly valuable in covering carded-yarn fabrics made from low-grade cottons; has excellent affinity for cellulosics and has very good leuco stability at high temperatures.	American Cyanamid	N-310
Vat	Calcoloid Jade Green NC Supra Double Paste	Wool, silk, and cellulosics	An improved jade green product that provides clarity, full-hued purity, high tinctorial strength, and all-round good fastness in extra bright shades; produces good unions on cotton and viscose; easily applied at elevated temperatures on all types of dyeing equipment—produces good color yield under all dyeing conditions.	American Cyanamid	N-311
Vat	Calcoloid Brown RRP Paste	Wool, silk, and cellulosics	An improved brown vat for printing under most aging conditions—true shade and full strength produced with both flash aging and conventional steam aging.	American Cyanamid	N-312
Vat	Calcoloid Brown GL Double Paste	Wool, silk, and cellulosics	An improved brown vat resistant to migration during drying of pigment-padded cloth; gives dyeings with excellent surface appearance and uniformity by the pad-steam method; thin, nonspecking, nonsettling, nondrying pastes.	American Cyanamid	N-313
Vat	Solanthrene Brilliant Scarlet N Optima Paste	Cellulosics	Recommended for printing cottons and for pastel shades on acetate rayon, using normal printing method for vats; particularly recommended for red and scarlet shades of outstanding brightness to hot pressing—no sublimation at 390 F—and maintains shade under prolonged aging conditions.	Francolor	N-314
Vat	Solanthrene Beige N Optima Paste	Cellulosics	Recommended for printing on cottons and other vegetable fibers; is very useful for printing large blotches in pale shades on spun viscose; shades are very uniform with excellent fastness to light, even in pale depths; applied by conventional printing methods for vats; owing to its extreme fastness to dispersion, full color yield is obtained only at strengths equal to or below 60 parts per thousand; can be used for discharge in resists under Aniline Black.	Francolor	N-315
Vat	Solanthrene Printing Black 2J Double Paste	Cellulosics	Recommended for cottons and for other natural and regenerated vegetable fibers; printed with normal formula for printing vat colors but calls for Rongeol C Extra Powder; is good for printing blacks both as outlines and blotches.	Francolor	N-316

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FREE BOOKLETS

12-1 OILERS, OIL CONTROLS. Circular describes bottle oilers, oil cups, and constant level oil controls. Covers dimensions, applications, etc. Lunkenheimer Co., Box 360, Cincinnati 14, Ohio.

12-2 STARCH KNOWLEDGE. Series of technical data sheets entitled "What You Should Know About Starch" gives good technical information. The Hubinger Co., 601 Main St., Keokuk, Iowa.

12-3 INDUSTRIAL TRUCKS. Bulletin describes and illustrates rider-type electric and gasoline powered fork trucks, including loading devices. Baker Industrial Trucks, Division of Otis Elevator Co., 8000 Baker Avenue, N.W., Cleveland 2, Ohio.

12-4 CURING MACHINE. Bulletin describes and illustrates new roll type curing machine for resin type finishes. Adams/Zeller Corp., 141 E. Glenside Ave., Glenside, Pa.

12-5 NONWOVENS. Further interesting information on nonwovens is contained in Nonwoven Fact File Folder. Curlator Corporation, 501 W. Commercial St., E. Rochester, New York.

12-6 PNEUMATIC CONTROLS. Brochure describes pneumatic lap controls, pneumatic picker clutch and pneumatic lap pin pusher. Livingston & Haven, Inc., P. O. Box 808, Charleston, S. C.

12-7 MEASURING TOOLS AND INSTRUMENTS. Catalog features complete line of measuring tools and tool room specialties as well as precision measuring instruments. Scherr-Tumico Co., 200 Lafayette St., New York 12, N. Y.

12-8 SYNTHETIC TOW CRIMPERS. Bulletins describe machines or crimping synthetic tow, one design for easily bent fibers and one for more rugged service. Turbo Machine Company, Lansdale, Pa.

12-9 SURFACE ACTIVE AGENTS. Bulletin describes complete line of synthetic surface active agents and detergents for industry. Chemical and application specifications included. Swift & Co., Soap Department, Chicago 9, Ill.

12-10 SURFACANTS. Booklet describes properties and uses of Tergitol surfactants, useful in the formulations of adhesives and textile processing agents. Union Carbide Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

12-11 FLOOR SPECIFICATION MANUAL. "Specification Manual" for Northern and hard maple, beech and birch flooring is a text book on hardwood flooring. Maple Flooring Manufacturers Assoc., Suite 548, Pure Oil Building, 35 E. Wacker Dr., Chicago 1, Ill.

12-12 STRAPPING MACHINES. Catalog describes numerous models of automatic packaging machines using both steel strapping and wire. Also includes several hand tools. General Strapping Corp., 100 Park Ave., New York 17, N. Y.

12-13 STORAGE TUBES. Brochure describes how new storage ideas provide protection and instant location for anything that can be stored in a tube. Sonoco Products Company, Hartsville, S. C.

12-14 POWER PERCH. Brochure describes floor type power perch or burling table, including information on basic equipment and optional features. Birch Brothers, Inc., 32 Kent Street, Somerville 43, Mass.

12-15 MICRO SWITCH USES. "Uses Unlimited" describes various applications for various types of switches. Micro-Switch Division, Minneapolis-Honeywell Regulator Co., Freeport, Ill.

12-16 CUTTING MACHINES. Brochure describes machines that accurately measure and cut ribbon, tape, and webbing in lengths up to 160 inches and speeds to 7200 cuts per hour. Artos Engineering Co., 2757 South 28th St., Milwaukee 46, Wis.

12-17 SIZING SERVICE. Information on technical service to help your weave room run better. Southern Sizing Co., East Point, Ga.

12-18 BEECHCRAFT. Full information on the all new line of 1960 Beechcrafts for a time and money saving means of transporting executives. Southern Airways Co., Atlanta Airport, Atlanta, Ga.

12-19 TWIST-SETTING CARPET YARNS. Bulletin discusses twist-setting nylon spun yarns for use in carpets. Includes selection, construction and handling. Textile Fibers Dept. E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.

12-20 OVERHEAD HANDLING CATALOG. Features engineered overhead handling systems of tracks, cranes, trolley, switches, etc. American MonoRail Co., 1111 East 200th St., Euclid, Ohio.

12-21 NEW DYE CARD. Comprehensive shade card for acid dyestuffs and two basic dyes has swatches. General Dyestuff Company, 435 Hudson St., New York 14, New York.

BOOKLETS

raw stock to roving

T-101 LUMMUS PEPPER - SHAKER OPENER. Gives complete details and protographs. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-102 STATIC ELIMINATION. How to eliminate static safely and inexpensively. Simco Co., 920 Walnut St., Lansdale, Pa.

T-103 CARD GRINDING INFORMATION. Care and operation of cards. B. S. Roy & Son Co., Worcester, Mass.

T-104 CARD CLOTHING. Describes Strip-O-Matic Card Clothing. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia, Pa.

T-105 VERSA - MATIC DRAWING FRAME. Describes drafting elements, quality of sliver, roving and yarn possible. Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass.

T-106 SARGENT OPENER. Describes opener with rotary evener and stripper. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-107 FEATHERTOUCH DRAFTING. How to get "highest production per frame at lowest cost." Ideal Industries, Inc., Bessemer City, N. C.

T-110 BOBBINS. Catalog describes metal, wood and plastic bobbins. Illustrations show actual use. Lestershire Spool Div., National Vulcanized Fibre Co., Wilmington, Del.

T-111 MAGNETIC IDEAS. Booklet shows uses of permanent magnetic separation equipment in opening room as well as throughout mill. Removes tramp iron, prevents fires. Eriez Mfg. Co., Erie, Pa.

T-112 ADVANTAGES OF ALDRICH PICKERS. Good technical text, comprehensive pictures. Aldrich Machine Works, P. O. Box 750, Atlanta, Ga.

T-113 NEW CONDENSER TAPE. Describes Supr-O-Tape, an impregnated fabric condenser tape. Benjamin Booth Co., Allegheny Ave. & Janney St., Philadelphia 34, Pa.

T-119 FIBER METER. Automatic weighing and blending assures quality, holds variation to 1%. James Hunter, Inc., P. O. Box 298, Mauldin, S. C.

T-120 PIN DRAFTERS. Textile job report No. 21 tells how Warner & Swasey Pin Drafters help modify jute systems for carpet yarns. Warner & Swasey Co., 5701 Carnegie Ave., Cleveland 3, Ohio.

T-121 UNIVERSAL CARD COILER. Literature describes both head and base swivel for adjustment. Includes data on 90-day free trial. McDonough Power Equipment, Inc., McDonough, Ga.

T-122 RECONDITION OPENING & CLEANING. Bulletin gives whys and wherefores of reconditioning your opening and cleaning lines. Special attention given to each machine with suggestions as to parts replacement. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-123 COILER CONVERSIONS. Full facts on low initial cost conversion to larger coiler cans. Lists advantages, has complete description. Southern States Equipment Corp., Hampton, Ga.

T-124 CARD DRIVE. Bulletin 301-a describes simple, safe, efficient individual card drive. Southern States Equipment Corp., Hampton, Ga.

T-132 PROCTOR SUPER PICKER. Data sheet gives details of the Proctor Super Picker for use on slabs of baled cotton, or wool and synthetic blends in layers up to 12" thick. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-133 ANTI-STATIC AGENT. Data sheet lists basic characteristics of liquid anti-static agent which eliminates processing difficulties with fibers due to static electricity. E. F. Houghton & Co., 303 West Lehigh Ave., Philadelphia 33, Pa.

yarn and warp making

T-201 PRODUCTS FOR SPINNING AND WEAVING. Complete line, applications, advantages shown. Dayton Rubber Co., Textile Div., Dayton, Ohio.

T-202 NEW BOBBIN MANUAL. Complete bobbin guide. Lestershire Spool Division, National Vulcanized Fibre Co., Wilmington 99, Delaware.

T-203 SPINDLE OIL. "Gulfspin" insures against excessive wear and eliminates spindle wobble. Gulf Oil Corp., Gulf Bldg., Pittsburgh, Pa.

T-205 HIGH SPEED AUTOMATIC QUILLER. Lists advantages and dimensions of "Autocopser." Terrell Machine Co., Inc., P. O. Box 928, Charlotte, N. C.

T-208 PACKAGED SPINNING MODERNIZATION. Details on Collecto-Vac, Open-Aire Creels, Cross-Jet Cleaner, Air Conditioning. Bahnson Company, Winston-Salem, N. C.

T-209 SECTIONAL WARPER. Describes full width and sectional warpers for knitting, weaving. Robert Reiner, Inc., Weehawken, New Jersey.

T-210 CONICAL RINGS AND FLYERS. Complete details and specifications. Herr Manufacturing Co., Inc., 318 Franklin St., Buffalo 2, New York.

T-211 PRECISE WINDING MACHINE. For winding pineapple or straight cones and tubes of synthetics. Foster Machine Co., Westfield, Mass.

T-212 AUTOMATIC CLEANING EQUIPMENT. Working details and advantages of the Tri-Rail Cleaner. American MonoRail Co., 111 East 200th St., Cleveland 17, Ohio.

T-216 SPINNING FRAME CONVERSIONS. Big-package, new-frame results at half the cost. Meadows Mfg. Co., P. O. Box 10876, Station A, Atlanta, Ga.

T-217 COLLECTO-VAC. New development collects lint, fly and broken ends. The Bahnson Company, Winston-Salem, N. C.

T-219 SPINNING AND TWISTER RINGS. Complete details, pictures, price list. Whitinsville Spinning Ring Co., Whitinsville, Mass.

T-222 SUCTION CLEANING SYSTEM. Details on new Collector Unit Model C-4. Pneumafil Corp., Charlotte 8, N. C.

T-223 FACTS ABOUT YOUR FLYERS AND SPINDLES. Advantages of smooth flyer and spindle operation. Ideal Machine Shops, Bessemer City, N. C.

T-225 LAPLESS ENDLESS SPINNER. Full information available. Ton-Tex Corporation, 31 Columbus Ave., Englewood, N. J.

T-226 WORSTED SPINNING. Describes five stages from top to yarn. Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass.

T-227 SPINDLE OILING MACHINE. Features and advantages noted. Wicaco Machine Corp., 4900 Stenton Ave., Wayne Junction, Philadelphia 44, Pa.

T-228 HANDY SPINNING REFERENCE. Shows traveler speeds, sizes of ring flanges. Saco-Lowell Shops, Parts Replacement Division, P. O. Box 327, Greenville, South Carolina.

T-229 UNIRAIL UPTWISTER. Higher yarn quality and better packages at faster speeds. Leesona Corp., P. O. Box 1605, Providence, R. I.

T-230 PRECISION TEXTILE WINDING. Tensions and density control for winding rubber cones. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-231 CONE WINDER. Describes Model 102 winder, including applications. Foster Machine Co., Westfield, Mass.

T-232 SHORT CUT TO STAPLE FIBER SPINNING. Ten steps in operation of the Tow Stapler. Turbo Machine Co., Lansdale, Pa.

T-233 WEAVER'S KNOTTER. Instructions as to use, description. A. B. Carter, Inc., Gastonia, N. C.

T-234 TEXTILE ROLL COVERINGS. Describes complete line as well as other mill supplies. Armstrong Cork Co., Industrial Div., Lancaster, Pa.

T-239 LARGE PACKAGE TWISTER. Information on new anti-friction Jumbo Twister which carries a 14" bobbin with a 12" build. Meadows Mfg. Co., P. O. Box 10876, Sta. A, Atlanta, Ga.

T-241 PACEMAKER TWISTERS. Folder gives details on high production, outlines notable features. Whitin Machine Works, Whitinsville, Mass.

T-242 RING SPINNING FRAME. Folder presents description, illustrations and specifications of up-to-date Simplex ring spinning frames. Davis & Furber Machine Co., North Andover, Mass.

T-243 ANTI-FRICTION TWISTER BEARINGS. Find out how bearings helped make The Meadows Twister almost friction-free. Fafnir Bearing Company, New Britain, Conn.

T-246 BETTER BEAMS. Information on three ways to make better beams. Kidde Textile Machinery Corp., Farrand St., Bloomfield, N. J.

T-249 VARI-SPEED MOTOR PULLEY. Describes variable speed control through use of simplified three-major-part disc-assemblies with only one lubrication point. Reeves Pulley Co., Reliance Electric & Engineering Co., Columbus, Ind.

T-250 SPINNING MODERNIZATION Booklet shows how lower costs and improved quality are obtained by spinning modernization. Roberts Company, Sanford, N. C.

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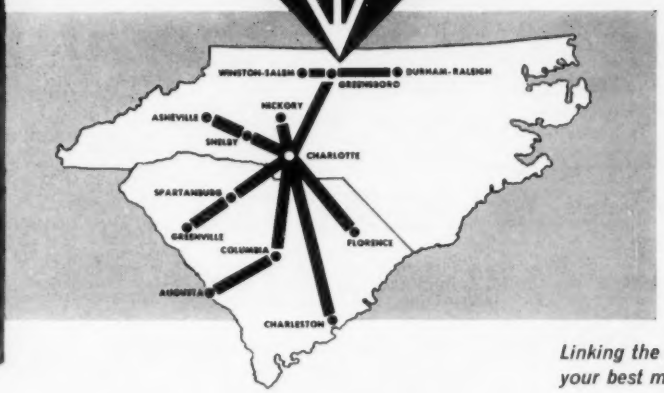

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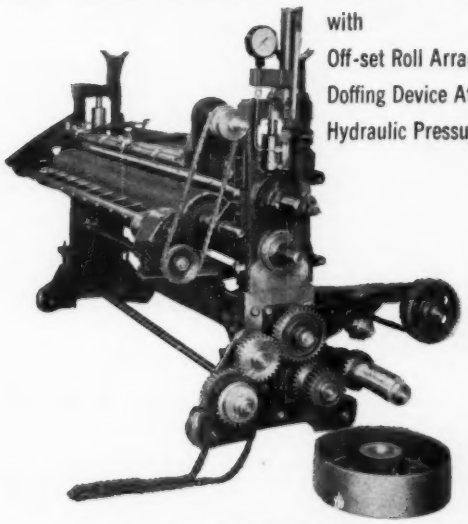

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BOOKLETS

T-255 **NEW BOBBIN HOLDER.** Details on streamlined, positive latching bobbin holder. Whitehead Die Casting Co., 1140 Zonolite Rd., Atlanta, Ga.

slashing—weaving—tufting

T-301 **COUNTING AND MEASURING DEVICES.** Wide range of counting devices for all types of textile machinery. Veeder-Root, Inc., Hartford, Conn.

T-302 **LOOM SUPPLIES.** Describes complete line. E. H. Jacobs Northern Division, The Bullard Clark Co., Danielson, Conn.

T-304 **LOOM PRODUCTION CHARTS.** Celluloid card shows yards per loom per week. Ralph E. Loper Co., Greenville, S. C.

T-306 **THE STORY OF STARCHES.** History and information on manufacture and use of starches. National Starch & Chemical Corp., 750 Third Ave., New York 17, N. Y.

T-308 **STEEL WARP BEAMS.** Beams for both broadloom and narrow fabrics. Milton Machine Works, Inc., Milton, Pa.

T-309 **PENFORD GUMS IN TEXTILES.** Describes their excellent properties for warp sizing spun yarns. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-312 **AIR SLASHER DRYER.** Shows construction and operating details. Proctor & Schwartz, Inc., 7th St. and Tabor Rd., Philadelphia 20, Pa.

T-313 **BUTT-TACKING SEWING MACHINE.** Describes operation, installation of single thread butt-tacking sewing machine. The Merrow Machine Co., 28 Laurel St., Hartford, Conn.

T-314 **LOOM REED BOOKLET.** Describes in detail a variety of reeds. Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia 32, Pa.

T-315 **COCKER EQUIPMENT.** Information on warp sizer, beam warper, creels, tensions, back-winders, etc. Cocker Machine & Foundry Co., Gastonia, N. C.

T-318 **FORMULAS FOR SLASHING ARNEL.** Includes also information on warping, weaving and quilling. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte 1, N. C.

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T-403 **RASCHEL KNITTER.** Describes new Raschel-type knitting machine. Kidde Textile Machinery Corp., Inc., Farrand St., Bloomfield, N. J.

T-406 **NEEDLE OIL DOES NOT STAIN.** Details on "Gulftex 30" developed for knitting mills. Gulf Oil Corp., P. O. Box 1106, Pittsburgh 30, Pa.

T-407 **KNITTING MACHINES.** Information on Wildman "TFS" 30" single section F-F machines and "AL" 32" diameter 32-feed "single purpose" circular interlock machine (rib type) Wildman-Jacquard Div., Draper Corp., Hopedale, Mass.

T-409 **KNIT GOODS FINISHING MACHINERY.** Data on calenders, shrinkers, curers, extractors, steamers. Tubular Textile Machinery Corp., 33-61 54th St., Woodside, N. Y.

T-410 **"READING" TYPE 60 F-F KNITTING MACHINE.** Information about the new "Reading" Type 60, 38-section automatic full-fashioned hosiery knitting machine. Write Textile Machine Works, Reading, Pa.

wet processing

T-500 **CLOTH GUIDES.** Bulletin 22.1 provides application diagrams and illustrations. GPE Controls, Inc., 240 E Ontario St., Chicago 11, Ill.

T-501 **TUBES FOR PACKAGE DYEING.** Describes Dytex tubes for one-time use. Sonoco Products Co., Hartsville, S. C.

T-502 **FINISHING MACHINERY.** Text and photographs of complete line of machinery. Marshall and Williams Corp., 46 Baker St., Providence, R. I.

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T-504 **UREA FORMALDEHYDE.** Literature on urea formaldehyde or U.F. concentrate-85. Dept. CUFI-29-1, Nitrogen Div., Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-506 **CATIONIC SURFACE ACTIVE AGENT.** Describes Uversoft "D." Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-507 **CONTINUOUS STARCH COOKER.** Booklet shows how the use of continuous cookers for starch assures accurate control, economy, low maintenance in warp sizing and finishing. Clinton Corn Processing Company, Clinton, Iowa.

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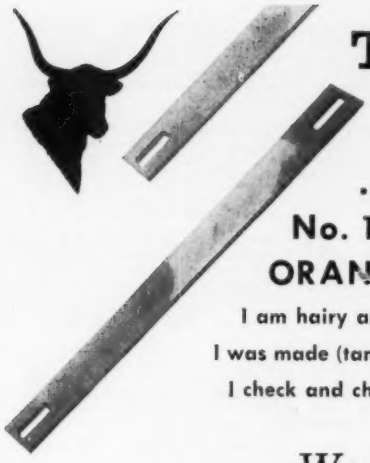

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T-510 TEXTILE CHEMICALS. Describes leading products for wet processors. Royce Chemical Co., Carlton Hill, N. J.

T-512 DEPUMA. Describes odorless, viscous, non-evaporating emulsion for anti-foam. Koppers Co., Inc., Chemicals & Dyestuffs Div., 2010 Clarke Bldg., Pittsburgh 19, Pa.

T-513 CATALYST AC-6. Tells how curing efficiency may be stepped up as much as 25%. Monsanto Chemical Co., Plastic Division, Springfield 2, Mass.

T-514 SODA ASH BULLETIN. Contains useful data covering this subject. Solvay Sales Division Allied Chemical Corp., 40 Rector St., New York 6, New York.

T-516 ALUMINUM CHELATE PEA-1. Technical data sheet tells how aluminum Chelate PEA-1 may be used with advantage in many applications where aluminum is propiate is unsatisfactory. Harshaw Chemical Co., 1945 East 97th St., Cleveland 6, Ohio.

T-517 CHEMICAL CATALOG. Lists products with chemical composition, properties and applications. Antara Chemicals Div., General Aniline & Film Corp., 435 Hudson St., New York 14, New York.

T-519 HYDRAULIC POWER UNITS. Describes unit for operating hydraulic textile machines. B. F. Perkins & Son, Inc., Holyoke, Mass.

T-522 CUT WATER TREATMENT COSTS. Describes the control of scale, slime, algae and corrosion. Oakite Products, Inc., 126C Rector St., New York 6, New York.

T-526 HYCAR LATICES. Physical properties and typical fields of application. B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland 15, O.

T-527 SODIUM HYDROSULFITE. Literature and test samples are available on "T-C Hydro." Tennessee Corp., 617-629 Grant Bldg., Atlanta, Ga.

T-528 ETHANOLAMINES. Lists application, chemical and physical properties. Nitrogen Division, Allied Chemical Corp., 40 Rector St., New York 6, New York.

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T-534 DYEING AND FINISHING MACHINERY. Complete line presented in series of catalogs. Birch Brothers, Inc., 32 Kent St., Somerville 43, Mass.

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T-536 NAPTHOL RATIOS SLIDE CHART. Quickly and accurately enables operators to determine Napthol Ratios. Alliance Color & Chemical Co., 33 Ave. P, Newark 5, New Jersey.

T-540 PENFORD FINISHING GUMS. Complete data, including physical properties. Penick & Ford Ltd., Inc., 750 Third Ave., New York 17, New York.

T-541 REGENERATION OF ZEOLITE WATER SOFTENERS. Explains advantages of Lixate Process. International Salt Co., Scranton, Pennsylvania.

T-542 DYEING SYNTHETIC FIBERS. Detailed analysis of methods and materials. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-543 INDUSTRIAL BRUSHES. Features use on shears, printing machines. M. W. Jenkins' Sons, Inc., 444 Pompton Ave., Cedar Grove, N. J.

T-544 WASTE HEAT RECOVERY Describes system of waste heat recovery from polluted water. Ludell Mfg. Company, 5300 West State Street, Milwaukee, Wis.

T-545 WASHERS FOR SCOURING, BLEACHING, ACIDIFYING. Describes highcapacity, continuous process washers. C. G. Sargent's Sons Corp., Graniteville, Mass.

T-546 NAPHTHOL FOR LIGHTFAST BROWNS. Booklet describes new, straight, non-substantive naphthol, Naphthol As-BN, for the continuous naphtholation of cotton and rayon piece goods in the dyeing of economical, fast-to-light browns. General Dyestuff Co., 435 Hudson St., New York 14, New York.

T-547 SOFTENER, LUBRICANT, NAPPING AID. Technical information available on softener, lubricant and napping aid for natural and synthetic fibers, yarns and fabrics. Nopco Chemical Co., Harrison, N. J.

T-548 HANDBOOK ON METHOCEL. Gives technical information and use data on family of methylecellulose ethers called Methocel. Organic Chemicals Sales, The Dow Chemical Co., Midland, Mich.

T-549 WALL CHARTS FOR HANDLING, TESTING H_2O_2. Two 16" x 21" wall charts available, one on handling and the other on testing H_2O_2. Becco Chemical Div., Food Machinery & Chemical Corp., Buffalo 7, N. Y.

T-550 POLYVINYL ACETATE EMULSION. Bulletin contains a description of Celanese emulsions and cites advantages of Celanese polyvinyl acetate emulsions in textile finishing. Celanese Corp. of America, Plastics Div., 744 Broad St., Newark 2, N. J.

T-554 INSTRUMENT CATALOG. Complete information on industrial instrument accessories and supplies, includes specifications, parts numbers and prices. Catalog 500, Foxboro Co., Foxboro, Mass.

T-556 HUNTER DYEING EQUIPMENT. Describes fully with diagrams Hunter Model A Dye Becks, Hunter No/Lap Reels, Model S Dye Kettles, Open Width Dye Kettles, Sample Dye Kettles. James Hunter Machine Co., North Adams, Mass.

T-557 HIGH ACTIVITY CATALYST. Technical bulletin describes new catalyst AC-6 which provides increased activity, excellent bath life, minimum odor formation, etc. Monsanto Chemical Co., Plastics Div., Springfield, Mass.

T-558 CATIONIC DYE LEVELER. Bulletin TX-34 gives new information on dye leveler for acid colors on nylon tricot and wool through use of Nopco 1425-B. Nopco Chemical Co., Textile Chemicals Div., Harrison, N. J.

T-559 FLOW CONTROL Complete information on largest selection of values to handle flow control requirements. William Powell Co., 2525 Spring Grove Ave., Cincinnati 22, Ohio.

T-561 PUMP POURABLE PASTES. Bulletin tells how Moyno pumps can pump any textile liquid that can be forced through a pipe, even if highly viscous or corrosive. Robbins & Myers, Inc., Springfield, Ohio.

T-563 POLYETHYLENE FINISHING AGENT. Booklet contains information needed to adopt Emulsifiable A-C polyethylene as a finishing agent to any particular process. Semet-Solvay Petrochemical Div., Allied Chemical Corp., 5th Floor T, Rector Street, New York 6, N. Y.

T-564 HYDROGEN PEROXIDE BLEACHING. Booklet discusses advantages, operating details and savings in chemical costs of Activated Hydrogen Peroxide Bleaching Process for Cotton, Solvay Process Div., Allied Chemical Corp., 61 Broadway, New York 6, N. Y.

T-566 ETHYLEX GUMS. Brochure describes properties of hydroxy ethyl ether derivatives of corn starch. Applications of these noncongealing gums in warp sizing and finishing covered. A. E. Staley Mfg. Co., Box 151, Decatur, Ill.

T-570 CARPET DRYERS. Details, pictures, drawings on driven roll, conveyor, and tenter types. Andrews and Goodrich Div., 336 Adams St., Boston Dorchester, Mass.

T-571 CHAINLESS MERCERIZING MACHINE. Two new bulletins provide complete information on the Benninger Chainless Mercerizing Machine for piece goods. H. W. Butterworth & Sons Co., Bethayres, Pa.

T-572 DYEING MACHINERY FOR EVERY PURPOSE. Illustrated literature available on complete line of automatically controlled machinery. Gaston County Dyeing Machine Co., Stanley, N. C.

T-576 YARN PREPARATION. Describes products for yarn preparation, printing, finishing. Polymer Industries, Springdale, Conn.

T-577 STAINLESS DRY CANS. Information on stainless steel, 75 psi, reverse dished, head dry cans. Can be furnished Teflon-coated if desired. Sims Metal Works, West Point, Ga.

T-579 AUTOMATIC GUIDING EQUIPMENT. Catalog shows various types of automatic guiding equipment for accurate cloth guiding. Fife Mfg. Co., Inc., P. O. Box 9615, Oklahoma City, Okla.

fibers and yarns

T-601 FORTISAN-36, NEW TEXTILE FIBER. Includes charts, diagrams, text, presents technical properties. Textile Sales Dept., Celanese Corp. of America, P. O. Box 1414, Charlotte, N. C.

T-602 CAPROLAN NYLON HEAVY YARNS. Describes strength, long flex life and ready dyeability. Fiber Sales Dept., National Aniline Div., 261 Madison Ave., New York 16, N. Y.

T-603 RAYON—MILE BY MILE. Details on how rayon is produced mile by mile, perfect inch by inch. Industrial Rayon Corp., 500 Fifth Avenue, New York 18, N. Y.

T-604 THE CHEMSTRAND NYLON STORY. Describes the birth and growth of Chemstrand Nylon. Chemstrand Corp., 350 Fifth Ave., New York 1, N. Y.

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T-606 "DIAL-A-FIBER." Ingenious circular chart indicates properties and compatabilities of "Uvitex" for application on natural and synthetic fibers. Ciba Co., Inc., Route 208, Fair Lawn New Jersey.

T-607 THE STORY ON LUREX. Information on metallic yarns and how they are developed to broaden the scope of the weaving, knitting, braiding, tufting, embroidery, lace, quilting and wet processing industries. Specify interest. Textile Fibers Department, Product Information Service, The Dow Chemical Company, Williamsburg, Virginia.

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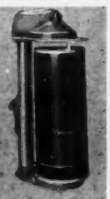

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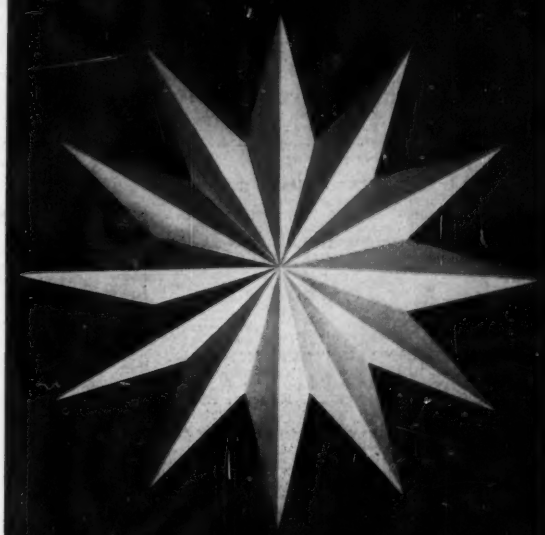

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T-609 PROCESSING NYLON STAPLE. Data sheet describes method of processing Du Pont 42 Nylon Staple in blends with cotton. Covers complete operation through sizing. Bulletin N-93, E. I. du Pont de Nemours & Co., Inc. Wilmington, Del.

laboratory

T-701 TESTING INSTRUMENTS. Descriptions of 37 instruments for testing textiles. Custom Scientific Instruments, Inc., 541 Devon St., Kearny, N. J.

T-703 SHADOGRAPH WEIGHING DEVICES. Pictures and information on various types of scales. Exact Weight Scale Co., Columbus 8, Ohio.

T-705 STROBOTAC. Measures speed of rotating, reciprocating or other cyclic motions. General Radio Co., West Concord, Mass.

T-706 YARN COUNT SCALE. Data sheet tells how direct-reading instrument provides fast, accurate method of determining yarn number. Exact Weight Scale Co., Columbus 8, Ohio.

T-712 AUTOMATIC MOISTURE CONTROL. Booklet tells how Hunter Electro-Psycnrometers are used in measuring percentage of moisture in all classes of textiles, whether yarns or fabrics. Hunter Controls, Inc., Div., James Hunter Machine Co., North Adams, Mass.

services for management

T-801 FACTORING SERVICE. Details on advantages of factoring, including information on general banking and pension plans. Trust Company of Georgia, Atlanta, Ga.

T-802 NON-WOVEN FABRICS. Report includes how non-woven fabrics are made, machinery involved, sample fabrics. Textile Fibers Dept., E. I. du-Pont de Nemours & Co., Inc., Wilmington 98, Del.

T-805 PROFIT THROUGH FACTORING. Brochure gives facts on the use of factoring as a modern plan for developing sound business growth and added profits. Walter E. Heller & Co., Dept. TI-2, 105 W. Adams St., Chicago 99, Ill.

T-807 GROUP INSURANCE. Information on how textile group insurance can insure the happiness of your employees and make for a better running mill. Provident Life and Accident Insurance Co., Group Dept., Chattanooga, Tenn.

T-808 FACTORING. Complete details on services offered as mill factors. L. F. Dommerich, 271 Madison Ave., New York, N. Y.

T-810 THE WONALANCET WAY is the title of an editorial booklet published five times a year dealing with current problems. Write Wonalancet Company, 128 Burke St., Nashua, N. H.

T-812 BEECHCRAFTS AT WORK. Booklet available from Southern Airways Company shows how Beechcraft executive airplanes can save executives time and money. Write Southern Airways Co., P. O. Box 718, Atlanta, Ga.

T-818 TEXTILE ENGINEERING. Information on complete, integrated service covering every type of textile project. Robert & Co. Assoc., 96 Poplar St., N. W., Atlanta 3, Ga.

T-819 ORGANIZED LUBRICATION PAYS. Planning book entitled "Management Practices that Control Costs via Organized Lubrication" shows how to effect savings in five areas of plant operation. Available from Texaco, Inc., 135 E. 42nd St., New York 17, N. Y.

T-821 INVENTORY CONTROL. How a daily report of inventory condition mechanically produced on existing business machines showed a net direct payroll saving of more than 10,000 a year. Administrative Methods Dept., Werner Textile Consultants, 1430 Broadway, New York, N. Y.

plant operation

T-902 BELT LACING EQUIPMENT. Includes prices, specifications, etc. Clipper Belt Lacer Co., Grand Rapids, Michigan.

T-903 "MOTOR SELECTOR." How to select a-c motors for specific application. Bulletin B-2103. Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio.

T-904 GEARMOTORS, MOTORGEARS, AND FLUID DRIVES. Catalog supplies complete information on double, triple, and quadruple reduction gearmotors and motorgears. Electrofluid and fluid drives are also explained. Link-Belt Company, Dept. PR, Prudential Plaza, Chicago 1, Illinois.

T-907 WRAP UP LINT PROBLEMS. Automatic lint filter removes lint from air, winds it into disposable roll. Bulletin 234, American Air Filter Co., 275 Central Ave., Louisville 8, Ky.

T-908 TEXTILE MOTORS. Bulletin describes complete line of textile motors. Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

T-909 COMPRESSORS. WB two-stage water-cooled. Space-saving units require modest foundation up to 125 psi and 1150 cfm displacement. Bulletin WB-10. Gardner-Denver Company, Quincy, Illinois.

T-910 MODERN LUBRICATION METHODS. A report to management tells how modern lubrication methods can help save thousands of dollars in three major economic areas of textile plant management. Describes twelve operating advantages of automatic lubrication systems. Lincoln Engineering Co., 4010 Goodfellow Blvd., St. Louis 20, Mo.

T-911 LEATHER BELTING. Selection, installation, proper maintenance. Atlanta Belting Co., 508-510 Whitehall St., S. W., Atlanta, Ga.

T-912 STORY OF NYLON BRISTLE. Tells of discovery and production, with special attention to "Tynex," a form of nylon ideal for use in brushes. M. W. Jenkins' Sons, Inc., 444 Pompton Ave. Cedar Grove, N. J.

T-913 "ONE-SHOT" LUBRICATORS Bulletin describes wide field of application for one-shot lubricators on machines requiring closely controlled but infrequent oil feed. Bijur Lubricating Corporation, Rochelle Park, N. J.

T-914 INDUSTRIAL GREASES. Describes multi-purpose lithium soap industrial greases. Sinclair Refining Co., 600 Fifth Ave., New York, New York.

T-917 BLOWERS AND EXHAUSTERS. Full description, including detailed drawings. Buffalo Forge Co., 490 Broadway, Buffalo 5, N. Y.

T-918 PAINT STRIPPING BOOKLET Explains simplified method of stripping paint. Oakite Products, Inc., 22 Thames St., New York 6, New York.

T-921 CATALOG OF NEEDLE BEARINGS. Design, application for five types of needle bearings. The Torrington Co., Torrington, Conn.

T-924 BALL BEARINGS FOR TEXTILE MACHINERY. Bearings for all phases of textile processing. The Fafnir Bearing Co., New Britain, Conn.

T-925 LUBRICATION OF BEARINGS. Helpful list of do's and don't to prolong bearing life. New York & New Jersey Lubricant Co., 292 Madison Ave., New York 17, New York.

T-931 NEW V-BELT DRIVES. Bulletin contains information on selection and operation of V-belt drives. Covers all types of V-belt drives. Dodge Mfg. Corp., Mishawaka, Ind.

T-932 SMOOTH ACCELERATION, DECELERATION. Describes eddy-current equipment for smooth, stepless acceleration and deceleration Eaton Mfg. Co., 3307 14th Ave., Kenosha, Wis.

T-933 CATECHISM OF ELECTRIC MACHINERY. Booklet contains complete technical treatise on various electrical machines. Electrical terms defined. Fairbanks, Morse & Co., Fairbanks-Morse Bldg., Chicago 5, Illinois

T-937 V-BELTS. Tells how raw materials and finished belts are tested and inspected. Quality control and experimental production covered. Booklet 5-51107, Dept. 794, Goodyear Tire & Rubber Co., Akron 16, Ohio.

materials handling

T-1005 Tramrail Engineering And Application. Data on how Tramrail equipment can cut handling costs. Cleveland Tramrail Div., Cleveland Crane and Engineering Co., 1036 East 289th St., Wickliffe, Ohio.

T-1007 Materials Handling For Textiles. Shows how fibre trucks can increase efficiency, protect products. National Vulcanized Fibre Co., Wilmington 99, Del.

T-1013 Trucks Doff, Store, Become Spooler Tray. Brochure tells how mobile boxes are being used as doff boxes, storage boxes, and spooler trays on Barber-Colman spooler. Fisher Mfg. Co., Hartwell, Ga.

T-1014 Carpet Cores, Storage Tubes. Literature on simplified storage and better cores for rugs. Sonoco Products Co., Hartsville, S. C.

T-1015 Overhead Conveyor. Catalog features "Cable-Way" Overhead Conveyor which has low-cost, ease of installation, quiet operation and long life. Conveyor Division, The American Mono-Rail Co., Fourth and Franklin Sts., Tipp City, Ohio.

T-1016 Guide To Better Closures. For use as a guide for the evaluation of methods currently in use to effect economy and better production in the closure of fiber board boxes. Acme Steel Products Div., Acme Steel Co., 135th and Perry Ave., Chicago, Ill.

T-1020 Automatic Wrapping. Tells how automatic packaging increases the sales appeal of textile products. Saves labor and materials and adds tamper-proof product protection. Write Hayssen Mfg. Co., Sheboygan, Wis.

T-1021 Tubes, Bobbins, Pirns. Information on world renowned yarn carriers, reliable as to stability, dimensions, weight. Emil Adolff (U. S. A. agents: Textube Corp., 695 Summer St., Stamford, Conn).

T-1022 Strong Cores. Data on lightweight, quality tubes and cores for textiles. Star Paper Tube, Inc., Rock Hill, S. C.

T-1023 Materials Handling. Describes lightweight, durable, smooth products. Spaulding Fibre Co., Inc., Dover, New Hampshire.

T-1024 Conditioning Truck. Details on all - aluminum, non - rusting conditioning truck. Excel, Inc., Lincolnton, N. C.

MILL NOTES

A $100 thousand expansion program, which includes installation of new automatic dyeing equipment for women's hosiery, has been initiated at **Hans C. Bick, Inc.,** Reading, Pa. Completion of the program is expected by June, 1961.

Management of **Jefferies Processors, Inc.,** Philadelphia, Pa., has announced that the main purpose of its new plant in Albemarle, N. C., is to dye and finish knitgoods for sweater manufacturers and to do skein dyeing for knitgoods producers. [It was erroneously reported in the November issue (page 192) that processing of sweater fabrics will be a minor activity.—The Editors]

A million-dollar expansion and modernization program at **Chiquola Manufacturing Co.,** Honea Path, N. C., has been announced by M. Lowenstein & Sons, Inc. * * * A new pilot plant in Anderson, S. C., was dedicated on October 21. Serving as a research and development center for the firm's entire manufacturing division, the facility is equipped to make finished fabrics from raw stock.

Bangor Mills, Inc., Pen Argyl, Pa., recently distributed to employees pension and insurance policies totaling $450,000, according to Meyer Korn, president. The 1959 increases and additions bring the total face value of the insurance policies and pension benefits held by the operatives to $1,500,000. It was explained that these policies are purchased on an individual basis, rather than on the group plan. As a result, a separated employee may take over and continue coverage or receive the value to which he is entitled in cash. Employees do not contribute to the plan.

Cabin Crafts, Inc., Dalton, Ga., has announced the formation of a company in northern Italy to manufacture tufted products under the Cabin Crafts patents and processes. The new company will be known as Societa Europea Rossifloor p.A. Associated in the venture is **West Point (Ga.) Manufacturing Co.** and Lanerossi, S.p.A., Milan, Italy. Spokesmen for the new company stated that this concern will be aimed at the rapidly expanding market for carpets and other tufted products in the six-nation common market area of Europe.

Contracts have been awarded for a 25,000 sq ft warehouse addition at the Cleveland Plant of **J. P. Stevens & Co., Inc.,** in Shelby, N. C. Scheduled to be completed early next year, the addition will be used for yarn and material storage.

Bell Textile Co., Inc., New York, has announced a two-year expansion and consolidation program for its southern division which includes **Belcraft Chenilles, Inc.,** and **Walter M. Gotsch Co.** in Dalton, Ga., and the **Pride Carpet Mills Co.** and **Dixie Belle Mills, Inc.,** at Calhoun, Ga. * * * At Dalton a 50,000 sq ft building will be erected, the contract having been recently awarded; also additional

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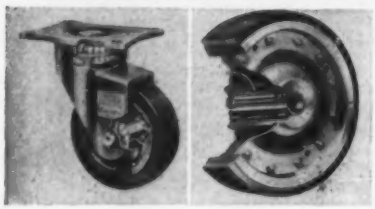

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MILL NOTES

(from page 177)

space will be provided for consolidation of three dyeing and finishing plants under one roof. More warehouse, shipping, and manufacturing space will be available, and construction of a new office and show room building is planned. * * * At Calhoun additional roller coating, scrim, and foam rubber equipment is being installed in a recently completed building. Also, the company plans to provide an additional 100,000 sq ft of space within the next year for manufacturing, office, and show room facilities.

Burlington Industries, Inc., Greensboro, N. C., has awarded two scholarships to Davidson (N. C.) College. Quinton Boyd, junior from Porterdale, Ga., and David Gillis, senior from Mount Olive, N. C., were chosen by the college to receive the awards this year.

J. P. Stevens & Co., Inc., recently purchased **Angle Silk Mills, Inc.,** Rocky Mount, Va., and its branch plant, **Virginia Mills Co.,** Ferrum, Va. Named vice-president and general manager of the newly acquired units was Milton Southerland who is also manager of Stevens' Carter Plants. Mr. Southerland will continue to maintain his office in Greensboro, N. C. General superintendent of Angle is J. A. Patterson who is also superintendent of Stevens' Carter Plant in South Boston, Va.; Mr. Patterson will continue to maintain his office in South Boston. Harry P. Mullen, formerly vice-president and treasurer of Angle, continues with the firm in the capacity of plant superintendent.

Rockingham (N. C.) Mills, Inc., has begun operations in the building formerly occupied by Safie Mills. An announcement stated that the firm would employ 150 persons in weaving and dyeing of upholstery fabrics.

Sherman Textile Co., Worcester, Mass., has increased production by opening a new plant in Lincolnton, N. C. It is reported that cotton and synthetic specialty fabrics are also being manufactured in the southern mill.

Production of knitted deep-pile synthetic fabrics for the manufacture of coats is planned by **Sidney Blumenthal & Co.,** a division of Burlington Industries, Inc. A company spokesman said circular knitting machines for making these fabrics are being installed and fabrics would probably be available in time for garments to be in the stores next fall.

A dinner was given recently by the men's and women's clubs of Waxhaw, N. C., for personnel of the **Filatex Corp.,** an elastic yarn manufacturing firm which began operation in Waxhaw a short time ago.

Clinchfield Manufacturing Co., Marion, N. C., has installed combers in the No. 1 mill.

The East (Mass.) Weymouth Wool Scouring Co. has been liquidated.

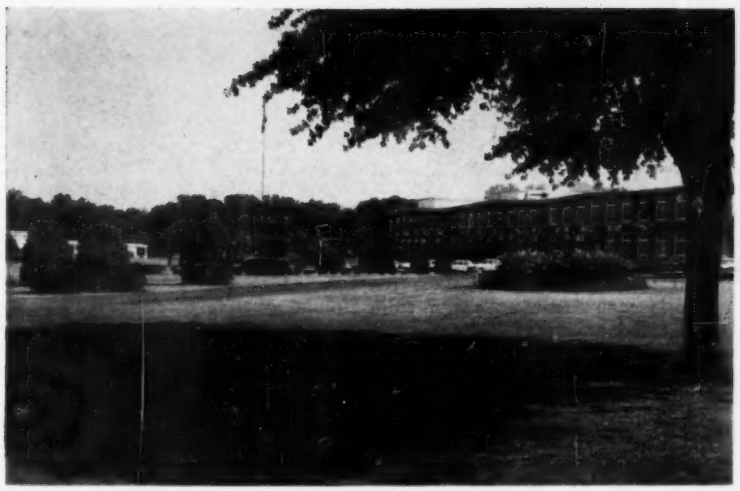
A custom dyed carpeting service initiated by **Wunda Weve Carpet Co.,** Greenville, S. C., has been a great boost to the firm's business, according to a company official. The service allows the carpet dealer's customer to choose the color desired, and delivery of the carpet is made 7 to 14 days after the order has been placed.

A bronze "Oscar-of-Industry" has been awarded to **Dan River Mills, Inc.,** by "Financial World" for having the best annual report of the textile industry.

W. J. Erwin, president, is shown receiving the award for his company from Richard J. Anderson, editor of "Financial World", at the annual Awards Banquet held in New York City recently.

Glenoit Mills, Inc., Janesville, Wis., a subsidiary of Botany Mills, Inc., New York City, plans to erect a 102,000 sq ft plant in Tarboro, N. C., for the manufacture of knitted pile fabric for coats, sportswear, rugs, and industrial uses. The firm will eventually employ 200 persons, the announcement stated.

Knitting operations have ceased at the **Code Felt and Knitting Co., Ltd.,** Perth, Ontario. Nearly all of the



Evidence of the importance of well-kept grounds and buildings to textile mill public and industrial relations programs was the following commendation recently received by UNION BLEACHERY, Greenville, S. C., from a man closely identified with the textile industry: "I want to congratulate you on the splendid appearance of the buildings and grounds of Union Bleachery," he wrote, "and the fine job of housekeeping that is being done. Our experience indicates that attractive, well kept plants mean much to the employees and greatly increase productivity." The letter was reproduced in the company's house organ, "The Commentator," along with the accompanying recent panoramic view of the front entrance of the plant.

principal assets have been purchased by **Hanson Mills, Ltd.**, Hull, Quebec. The felt division at Perth continues in operation.

Quitman (Miss.) Knitting Mills, Inc., a newly formed corporation, will operate the Quitman Hosiery Mills plant which has been closed for some time. W. C. Couch, Jr., who formerly was associated with the old hosiery organization, will head the new firm.

Danville (Va.) Knitting Mills has installed 35 more seamless hosiery machines. An increase in volume and a greater variety of production is anticipated, a company spokesman stated.

Domestic Lace Mfg. Co., Inc., Englewood, N. J., has begun operation in a new 24,000 sq ft plant, and new warpers and warp knitting machines have been installed. It is expected that 100 persons will be employed when full production is reached.

Norris Cotton Mills, Cateechee, S. C., has been purchased by **Woodside Mills.** The print cloth production at Norris supplements the same type of constructions at other Woodside units in the plain goods division. R. A. Taylor continues as vice-president and superintendent of the Norris plant.

The machinery and inventory of **Wytheville (Va.) Knitting Mills**, which recently ceased operations, have been purchased by **Berkshire Knitting Mills.** A major portion of the equipment was moved immediately to Berkshire's Andrews, N. C., plant. The remainder will be transported to the firm's units in Lebanon and Reading, Pa., at a later date.

The tricot fabric division of **Riverside Silk Mills, Ltd.**, Galt, Ont., Canada, has been purchased by **Silknit, Ltd.**, Toronto. The division will remain in its present location, but will be operated by a separate company to be incorporated shortly. The new firm has been tentatively designated **Riverside Fabrics, Ltd.**, pending formal approval. Riverside president Kenneth D. Bailey indicated that he has agreed to join Silknit to manage the tricot fabrics operation, but will remain a director and principal shareholder of Riverside.

Purchase of the **Charlottesville (Va.) Woolen Mills, Inc.**, has been completed by **Kent Manufacturing Co.**

A ten-week course in "Cotton Mill Mathematics" and "Cloth Analysis and Design" is being conducted at Kannapolis, N. C., for **Cannon Mills Co.** employees. Enrollment was said

Continued on page 180

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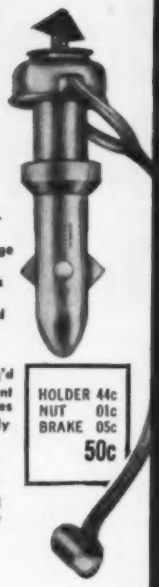

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LAWRENCE, MASS., U.S.A.
SERVING NEW ENGLAND SINCE 1917

MILL NOTES

(from page 179)

to be about 165. The school is sponsored by the vocational division of the North Carolina Department of Instruction in cooperation with Kannapolis schools, the YMCA, and Cannon Mills Co.

A new woolen system mill has been established at Dallas, Ga. Designated **Carpet Yarn Mills, Inc.,** the firm is manufacturing yarns from wool and blends of wool with manmade fibers. Lee Womelsdorf is president, and Sam Millender is secretary-treasurer. Both Mr. Womelsdorf and Mr. Millender are officials of Whitfield Spinning Co. of Dallas.

The American Thread Co., Inc., has provided more information about its recently announced improvement program (T. I. for Nov., 1959, p. 191). It will affect five of the company's mills as follows: At Tallapoosa, Ga., a 16,500 sq ft addition is being built to make room for new machinery including high-speed drawing frames, combers, large package roving frames, and spinning frames; at Dalton, Ga., some new machinery is being installed—large package roving frames and spinning frames; at Williamantic, Conn., large package roving frames; at Clover, S. C., present roving frames from other plants will be installed; at Sevier, N. C., a new mercerizer.

Early next year **National Knitting Mills Co., Ltd.,** Toronto, Canada, will move into a recently acquired 50,000 sq ft building at 300 Campbell Ave., Toronto. An extensive modernization and expansion program is planned after occupancy of the new facility which will provide about 15,000 sq ft more space.

Expenditure of $3,000,000 for improvement of blanket manufacturing facilities has been announced by **Fieldcrest Mills, Inc.,** Spray, N. C. The recently modernized machinery and auxiliary equipment of the firm's **St. Marys (Ohio) Woolen Mfg. Co., Inc.,** will be moved to Spray this month and key personnel will be transferred there also. Manufacture of blankets under the St. Marys label will be continued. In addition to this, a 200,000 sq ft plant is now under construction at Smithfield, N. C., for expansion of automatic blanket production. Completion of this unit is scheduled for early next year.

A new carpet mill is now under construction at White, Ga., for the **Kingston Mills, Inc.,** of Cartersville, Ga. Approximately 120,000 sq ft of operating space will be used by the new plant which will be devoted to the complete processing of tufted carpet. Bales of raw fiber, entering from one end of the plant, will be spun into yarn, made into carpet, and the finished product shipped from the opposite end of the plant. It is expected that operation of the new plant will start early in 1960. The main office of Kingston Mills, Inc., presently in Cartersville, will be moved also to White.

The Long Island, N. C., plant of **Superior Yarn Mills** was closed on October 3 because it was located in the path of backwater from a power plant dam being constructed on the Catawba River. Equipment has been moved to the company's main mill at Mount Holly, N. C., which is being enlarged for expansion of production facilities and consolidation of all operations under one roof. It was announced that Superior's plant at East Monbo, N. C., will be operated through next year when it too will be closed and equipment transferred to Mount Holly.

The Aliceville, Fayette, and Winfield, Ala., plants of **Dan River Mills, Inc.,** have been sold to **Union Underwear Co.,** a subsidiary of Philadelphia and Reading Corp. The mills will furnish additional yarn for Union's knitting mill at Campbellsville, Ky., and also supply a major portion of the piece goods requirements of the firm's plants at Bowling Green and Frankfort, Ky.

Limited operations have begun in the A. P. McAuley Co. plant of **Universal Prints** in Spartanburg, S. C. The firm is operating in its recently-completed building which replaced a former structure destroyed by fire in another location. Management indicated that employment is expected to reach 200 within six months, a 100 per cent increase over that in the former plant.

The Jackson (Mo.) Hosiery Co. division of **Wayne Knitting Mills** has begun conversion of its production facilities from full-fashioned hosiery to almost exclusively seamless hosiery manufacture. Less than 10 per cent of the firm's output will be full-fashioned hose when the changeover has been completed late next year.

SUPPLIER NOTES

E. I. du Pont de Nemours and Co., Inc., has announced plans to construct a plant to manufacture acrylonitrile by a new, low-cost process, on the company's present plant site near Beaumont, Texas. This is the second unit to be announced this year for acrylonitrile, a raw material used in the manufacture of "Orlon" acrylic fiber. Another plant is being constructed at the Beaumont site to produce caprolactam, an intermediate for nylon 6 fiber and plastics. A new unit to produce dimethyl terephthlate (DMT) for "Dacron" polyester fiber is nearing completion at Old Hickory, Tenn. * * * Ellwood F. Altmaier has been appointed manager of the newly formed Tariff section, Textile Fibers Department. Succeeding Mr. Altmaier as manager of advertising and promotion in the Textile Fibers Department is Angelo J. Smith, Jr., manager of home furnishings merchandising.

Roy D. Faigenbaum, who recently resigned as vice-president of Fidelity Machine Co., has established his own organization for the sale and service of knitting machinery, attachments, and accessories. Offices for the firm are located at 7420 Mountain Ave., Melrose Park, Philadelphia, Pa. Mr. Faigenbaum stated that he will concentrate in the circular knitting field, and eventually his plans include service and parts depots in important centers in the U. S. and Canada.

Officers of G. M. Pfaff AG of Kaiserslautern, Germany, recently presented a sliver tray to the officials of **Willcox & Gibbs Sewing Machine Co.,** in celebration of Willcox & Gibbs' 100th anniversary.

Lawrence Katz of Fidelity Machine Co., Inc., has been elected president of **The Knitting Machine Manufacturing Association,** and Irving M. Golden of Supreme Knitting Machine Co. has been named vice-president.

Leesona Corp. is the name recently adopted by **Universal Winding Co.** * * * The company has acquired Thomas Holt Ltd., manufacturers of textile machinery in Rochdale, England. The English firm is now operating as a Leesona subsidiary under the name Leesona-Holt, Ltd. It was explained that this acquisition will enable Leesona to manufacture in England certain machines in its line previously produced there on a contract basis. The company will continue to manufacture Holt's present line of machinery. Leesona's

Continued on page 182

FIFE KAMBEROLLER is the only existing method by which moving goods of any type can be positioned to extreme accuracy at intermediate points at any cloth speed throughout an operation. *FIFE* has solved endless problems, many of long standing. Your inquiry will receive immediate attention.

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SUPPLIER NOTES

(from page 181)

sales and service branch in Manchester, England, has been consolidated with the Leesona-Holt operation.

Rodney Hunt Machine Co. has announced that Harold H. Belcher has been elected to the board of directors and vice-president in charge of the newly formed engineering division.

Donald Campbell has been named assistant district sales manager of the Providence, R. I., office of **American Enka Corp.**

Sonoco Products Co. has announced the establishment of two $500 annual scholarships for the School of Textiles at Clemson (S. C.) College. The scholarships for 1959-60 have been awarded to William L. Patrick of Charleston, S. C., a sophomore in textile management, and to Roy E. Phillips, sophomore in textile chemistry from Rock Hill, S. C.

Walter J. Bartlett has joined the fibers division of **American Cyanamid Co.** as a sales and merchandising representative in the woven goods department and will work out of the New York office. Previously Mr. Bartlett was sales manager for Continental Mills, Inc.

Donald Cox has joined **Metro-Atlantic, Inc.,** and has been appointed to the staff of the technical service laboratories. He was formerly associated with Union Wadding Co. and Sayles Finishing Plants, Inc.

Ludell Manufacturing Co. has announced the promotion of David Goodyer to the newly created position of manager of the product sales division.

Mr. Campbell
American Enka

Mr. Cox
Metro-Atlantic

Mr. Hicks
Polymer Industries

Mr. Goodyer
Ludell

Polymer Industries, Inc., has announced that it will receive benefits of intensive research into adhesives and polymer chemicals for the textile industry which is to be conducted in a multi-million dollar research center recently completed in Richmond, Va., by Philip Morris, Inc., the chemical firm's parent company. The new center will also perform intensive research development work for **Milprint, Inc.,** another Philip Morris subsidiary which produces flexible packaging materials used in the textile and other industries. * * * Albert M. Hicks has been named technical representative for the textile division of Polymer Industries, Inc. Mr. Hicks will service accounts in the northeastern sales territory and will be headquartered in the Springdale, Conn., offices.

Paul S. Trible has been appointed to the newly created position of general sales manager of the **International Salt Company, Inc.** * * * To better serve customers, the company has opened a new office in Charlotte, N. C., and enlarged the office in New Orleans, La. The offices in Atlanta, Ga., and Richmond, Va., have been closed. The southern sales division office in New Orleans has been discontinued. Robert H. Leavelle, former district manager of the closed Richmond office, has become district manager of the Charlotte office. Walter W. Harris, Jr., former sales engineer in the Atlanta office, is industrial products supervisor at Charlotte. Neil G. Corbett, former district manager in Atlanta, has become district manager of the New Orleans office, and Fred L. Cormack is industrial products supervisor.

Crane Co. has acquired **The Chapman Valve Manufacturing Co.** There will be no change in the company name and present management will be retained.

A. J. Gerrard & Co. is expanding to new quarters in Des Plaines, Ill. The Chicago suburban plant now under construction will house new automatic equipment to manufacture flat and oval strapping as well as a complete line of tools and accessories.

Andrew Scott has joined **Grestco Dyes & Chemicals, Inc.,** as a technical sales representative. Mr. Scott was formerly associated with Stonehenge Processing Co.

Durant Manufacturing Co. has appointed James K. McGinley general sales manager. Mr. McGinley will

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Wm. Powell

Mr. Mercier
Wm. Powell

Mr. Lee
Onyx Oil

Mr. Frost
Davis & Furber

Mr. Hunt
Dixon Corp.

Mr. Kitchens
Davidson-Kennedy

direct the company's sales offices in the U. S. and overseas.

A. B. Carter, Inc. has announced the acquisition of the exclusive manufacturing and distribution rights on products developed by the **Cole Engineering Corp.** As a result, the Carter organization is now in position to offer a complete line of grease-sealed needle-bearing top rolls for roving and spinning frames and a dual-apron dual-nose-bar drafting system changeover for any type of present spinning, in addition to their regular lines. All parts for the drafting system changeovers will be produced in the Carter plant, with assembly in Gastonia or Columbus, whichever is nearer to the customer. Top rolls will be made in the Cole plant.

Allis-Chalmers Manufacturing Co. has named B. G. Camp manager of the Atlanta, Ga., district. Mr. Camp was previously a sales representative in the Charlotte, N. C., district.

The **Ames-American Co.,** manufacturer of rubber covered rolls for the textile and other industries, plans to move its plant from Woonsocket, R. I., to North Easton, Mass., in the near future. It was emphasized that the move would be a gradual one so that customer service would be uninterrupted.

Raoul D. Elder has been appointed division sales manager of **Aurora Pump Division,** The New York Air Brake Co.

The Bassick Co., a division of Stewart-Warner Corp., has appointed Ralph D. Mount as general sales manager.

William F. Crowell, Jr., formerly associated with Moreland Chemical Co., has joined the **Chemical Services, Inc.,** Atlanta, Ga., in the capacity of vice-president.

Sam R. Hogg, formerly associated with Meadows Manufacturing Co., has joined **Comer Machinery Company, Inc.,** as a textile machinery salesman. * * * W. Harrell Price has been appointed to the textile machinery sales staff in the Charlotte, N. C., division. He was previously with Crompton & Knowles Corp.

Clinton W. Lee has been appointed New England district manager for **Onyx Oil & Chemical Co.** Formerly associated with Shell Chemical Corp., Mr. Lee will be in charge of the sales and service office in Boston, Mass.

The Wm. Powell Co. has announced the appointment of Wm. J. Mercier of Milwaukee as sales engineer for Wisconsin and upper peninsula of Michigan. At the same time, H. Alton Pearson of Ardmore, Pa., was appointed to represent the firm in the Philadelphia, Chester, and eastern Pennsylvania area.

Davidson-Kennedy Co. has named Harrold Kitchens as sales engineer, with offices in Macon, Ga. Prior to this appointment, Mr. Kitchens was associated with textile engineering and manufacturing firms in southern and midwestern states.

Bennie A. Frost, formerly overseer of carding at the J. P. Stevens & Co. plant in North Andover, Mass., has been named carding technician for **Davis & Furber Machine Co.** Mr. Frost is assigned to the Charlotte, N. C., office.

Henry A. Hurt of Albemarle, N. C., has been appointed to handle service calls in the South for **Dixon Corp.** He is available to all mills now using Dixon spinning changeovers, to assist in installing changeovers, and for consultation on spinning problems.

Proctor & Schwartz, Inc., has announced a further expansion of their services to the South. A new regional sales office has been opened at 3272 Peachtree Rd., N. E., Atlanta, Ga., under the direction of Denver D. Cunningham, who was appointed regional sales manager. * * * The company has announced plans for a new plant to be built at Lexington, N. C. An 80,000 sq ft building is to be erected on a 30-acre site south of the city limits on U. S. Highway 29.

The technical center of **Union Carbide Chemicals Co.,** a division of Union Carbide Corp., at South Charleston, W. Va., has been completed and was officially opened October 21st.

Saco-Lowell Shops has been appointed exclusive agent in the U. S. and all foreign countries to sell and service Hartford spindles made by **Hartford Machine Screw Co.** The Saco-Lowell textile sales department, which has taken over the servicing of existing Hartford spindle installations, will feature a complete line of spinning filling and warp spindles, and twister spindles to be known as Saco-Lowell Hartford spindles. * * * Saco-Lowell Shops has acquired rights to sell and service in the United States and all foreign countries, spinning and roving drafting equipment manufactured by Machinecraft, Inc., of Whitman, Mass. According to the announcement, Cotton-McCauley and Co., Inc., will also continue to sell and service Machinecraft's product line. "Saco-Lowell sales engineers will work in close cooperation with the Cotton-McCauley organization to provide greater service to more customers," said J. Woodward Hubbard, vice-president of sales of Saco-Lowell's textile machinery division.

To insure speedy and continuous technical service and development work for customers in the textile and other industries in the eastern part of the U. S., **Dow Corning Corp.** is building a technical service and development laboratory adjacent to the other company plants in Greensboro, N. C. Manager of the new facility will be William H. Ragborg of the firm's Midland, Mich., labora-

MORTON

AUTOMATIC BALL-BEARING LOGGERHEAD

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It will increase picker room production. It will eliminate shut-downs. It will prevent stretched laps because of its ball-bearing, friction-free rollers.

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WEST BEND EQUIPMENT CORP.
MATERIALS HANDLING ENGINEERS
362 Water St., West Bend, Wisconsin

SUPPLIER NOTES

(from page 183)

tories. Also being transferred to Greensboro from Midland is E. M. Eddington who is a specialist in technical service for textile mills.

Thomas B. Spence has joined the **Warwick Chemical Division** of Sun Chemical Corp. as southern district sales manager, with headquarters in Rock Hill, S. C. Frederick B. Hennessey has been named technical sales representative for the metropolitan New York and Pennsylvania area. Mr. Spence was formerly with Bryant Chemical Corp. and American Cyanamid Co.; Mr. Hennessey with Industrial Rayon Corp.

Putnam Chemical Corp. has named Paul M. Otto sales representative for the wool processing industry. Mr. Otto will cover the southern New England states and part of the Mid-Atlantic territory, with headquarters in Beacon, N. Y.

Donald J. Eccleston has been appointed sales manager of **Arnold, Hoffman & Co., Inc.,** succeeding Dr. T. Richardson who has returned to the parent organization, Imperial Chemical Industries of England.

H. Grady Lyon has joined the repair sales division of **Whitin Machine Works** with headquarters in Charlotte, N. C. Mr. Lyon was previously superintendent of National Yarn Mills, Belmont, N. C. * * * Elmer L. Connor has rejoined the company as serviceman in the woolen division.

du Verre, Inc., has announced a program to double its facilities for manufacture of corrosion-free resin bonded glass fiber process equipment. When the expansion is completed, du Verre's facilities will include more than 20,000 sq ft. In addition, it is anticipated the labor force will be increased to handle the expanded business volume.

Development and use of an electronically controlled belt drive test stand which gives accurate data on the performance of its combination leather and polymer core belting under any given set of conditions has been announced by **Extremultus, Inc.** According to the firm, this belt testing machine is the first of its type.

Charles Mount, Jr., of Decatur, Ga., has joined the engineering and sales staff of the **Louis P. Batson Co.,** Greenville, S. C. Mr. Mount will contact some of the firm's customers in Georgia, Alabama, and Tennessee. * * * Edward D. Carman has joined the sales organization to assist in contacting the company's customers, especially those of Louis and Elliott Batson.

Richard E. Knopf has been named assistant manager of the New York office of the **Dow Corning Corp.,** in charge of silicone sales and promotion to the textile industry.

Mr. Eccleston
Arnold Hoffman

Mr. Otto
Putnam

Mr. Connor
Whitin

Mr. Lyon
Whitin

Mr. Spence
Warwick

Mr. Hennessey
Warwick

Mr. Mount
Louis Batson

Mr. Carman
Louis Batson

Labeling answers

(from page 125)

gate total of the "other fibers" which must be under 5%, but the individual fiber.

Q. How will responsibility for mistagging be designated?

A. Responsibility for misbranding is upon every person marketing or handling a textile fiber product subject to this Act and Regulations. Under the provisions of this Act and Regulations, the primary responsibility for labeling and record keeping is upon the manufacturer of the textile fiber product. If a product is properly labeled, the same information does not have to be set forth in an invoice.

The manufacturer of the textile fiber product must be able to show by records, his source of supply and the fiber content of his finished products. These records may be in the form of the actual composition of the fabric, if it is a fabric manufacturer, or in the form of sales contracts or invoices if the product is not in the form intended for sale or delivery to the ultimate consumer. A retailer need only keep records where he substitutes his own label for the one affixed by the manufacturer.

Every retailer should obtain one of the forms of guaranty provided for under the Regulations. This may protect the retailer in the event the product contains an unacceptable label. In fact, each person subject to the Act and Regulations should request a guaranty from his source of supply.

Q. Some manufacturers have a large quantity of tags in stock which list bullet-fashion the weight percentage of the contents as the first line in a list of product advantages. For example, the first bullet will say "All Cotton." The second will say "Color-Fast," etc. There is no type differentiation, and the name of the manufacturer is either on the other side of the tag or else at the bottom. Is this considered "close proximity" and "prominent"?

A. As long as the generic name and its percentage are legible, and of the same size type or lettering, and set off from the rest of the copy—in this case, by being first in a list of product advantages—it is considered prominent. The name of the manufacturer does not have to be right next to generic term, etc., but it should also be prominent and legible, and near enough so that the FTC will be able to identify the manufacturer.

Q. Some manufacturers are using the generic name in conjunction with a fiber trade name. Is there any specific way that this should be set up?

A. Where a fiber trademark is used on a tag, the generic name relating to the fiber trademark must appear in immediate conjunction and on the same line with such fiber trademark the first time such fiber trademark appears on the label and both must be of equal size type or lettering.

Use of fiber trademarks in advertising differs slightly in that the fiber trademark and the generic name do not have to appear in immediate conjunction the first time the fiber trademark is mentioned in the advertisement, but only at least once in the ad, be it in the heading, body or other part of the advertisement.

Q. A manufacturer wishes to prepare a woven label with his name for all his products. Then he wants to prepare separate tags for the individual products with the different generic names and contents. Is this permissible, and, if so, how could it be done?

A. The name required by Rule 16 (a) (2) may be set forth on a separate label providing that this label is in close proximity to the tag containing the other required information.

One possible way to do this would be as follows: the label should be sewn at the sides only, leaving room for a tag to be looped through the top and bottom of the label. The manufacturer should make certain, though, that the tag is *firmly* affixed to the label, and cannot be "lost." If it is done in this manner, it would be considered in "close proximity," even though the information is on two different units. However, the manner of affixing any of the labels used under this Act and Regulations has not been prescribed in that it is only necessary that the label be of such durability as to remain on or affixed to the product until its sale or delivery to the ultimate consumer.

Q. Could the fabric contents be separated?

A. No. All contents *must* be on the same side, and one right after the other. Anytime a second label affixed to the product purports to give fiber content, that second label must contain a complete disclosure of fiber content, as required by Rule 16 (b).

Q. Is it necessary to supply percentages of the same generic name? For example, a manufacturer's product is all cotton, but is made from Pima and combed cotton.

A. The manufacturer may say: "All Cotton," "100% Cotton" or "All Pima and Combed Cotton." He does not have to break down

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the percentages for his advertising and promotion. He may not, however, in listing the generic term break down the percentages there. For example, he may not list the generic term as "50% Combed Cotton" and "50% Pima Cotton," implying that there are two different fabrics present.

Q. In advertising the products, do the disclosures have to be made in the trade as well as the consumer advertising?

A. Disclosure of fiber content in written advertising is not mandatory and the Act does not apply to oral advertising. If the manufacturer's advertising discusses style or attributes of the product other than fiber contents, percentages need not be disclosed. However, if any implication of fiber content is made in the advertisement, the fiber content must then be stated, without percentages, in the order of their predominance by weight.

Q. What is the procedure for filing the Continuing Guaranty with the FTC? Are there government forms which must be used?

A. The FTC has prepared forms for the use of manufacturers; these may be obtained from any of the regional offices or from the Washington office. In the interest of uniformity, it is to the manufacturer's advantage to use this form—although it is not mandatory. If he uses his own forms, he must follow the language, etc., prescribed in Rule 38. He should prepare the Continuing Guaranty in duplicate and send it to the Division of Textiles and Furs, Federal Trade Commission, Washington 25, D. C. Once received, one will be filed with the Commission, and the other will be returned to the manufacturer.

Q. Isn't the tag or the label a Guaranty? Can it be substituted for the Continuing Guaranty?

A. The tag is not a guaranty nor can it be substituted for the Continuing Guaranty. Two things should be noted about the Continuing Guaranty. The first is that it is not mandatory, and the second that it is a criminal offense to give a false one.

Q. Would you suggest that a Continuing Guaranty be filed with the FTC, and that they be given to the retailers?

A. It would seem to be to the advantage of the manufacturer to give the Continuing Guaranty or file one with the FTC. In this way, the retailer will be more confident in purchasing the manufacturer's products. There are cases, however, where the manufacturer's products are so in demand that he does not have to give one. Nothing requires him to do so. The law does require him, however, to label and to tag his products correctly.

Q. What is the responsibility of the printer or of the trade press in reproducing or printing the manufacturer's ads, labels, and tags?

A. A newspaper, the trade press, or a printer is not a person subject to the Textile Fiber Products Identification Act. However, the person submitting such copy to the press or printer, be it the manufacturer, distributor, wholesaler, jobber, or retailer or any other person subject to this Act is responsible for the correct fiber content designation on labels, invoices and where required in advertising, and is subject to Section 3 (d) (4) of the Act.

Q. Will you summarize your feeling about the usefulness of this law?

A. Naturally, we must expect a certain amount of disruption at the beginning. The situation is analogous to those existing in the fur and the wool industries. When the laws affecting the proper labeling of their merchandise was first introduced, there were similar complaints and worrying. Now, after time has tested these rules and regulations, manufacturers and retailers are more than satisfied as to their effectiveness. They have been a distinct aid to the reputable men in the field. The textile people will find the same to be true. Once the true strength of the law has been fully realized and all the implications better understood, both manufacturers and retailers will consider it as a step to better business practices.

Technical Salesmen Wanted

Manufacturer of equipment for textile weaving mills has openings for salesmen in Va., N. C., Ga., Ala. Salary plus commission range $7,500 to $15,000. Full resume must accompany confidential reply. Write Box 79, TEXTILE INDUSTRIES, 806 Peachtree St., N. E., Atlanta 8, Ga.

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MURRY HILL 9-3950

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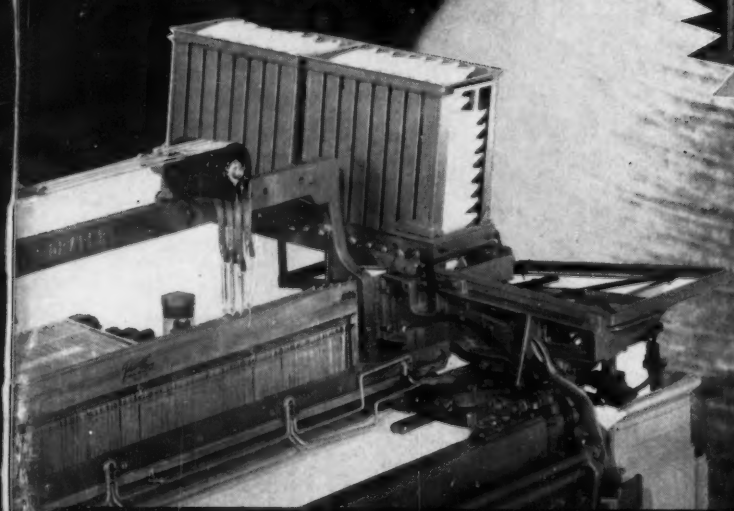

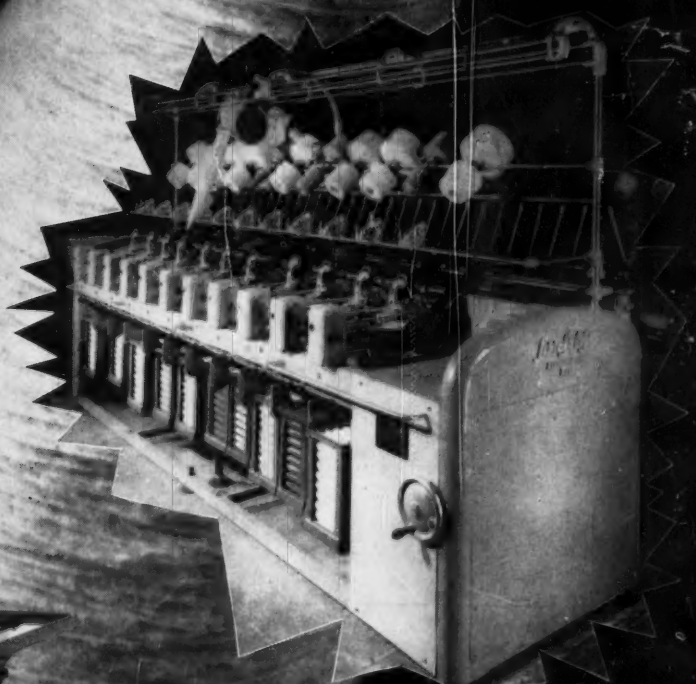

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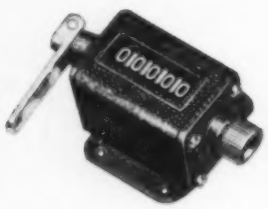
Worm-driven Reset Counter registers linear units as m passes under the friction whe Medium speed range. Widely used i inspection.

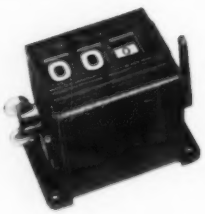
High Speed Reset Double Wheel Counter runs at speeds up to 6,000 rpm or 8,000 cpm.

Resets to zero with finger-flick. Features eye-level reading.



Small Reset Counters

Used on a wide variety of textile machines, including breakers, winders, marking machines, knitting machines and bobbin strippers. Revolution or ratchet types, for speed up to 1,000 counts per minute.



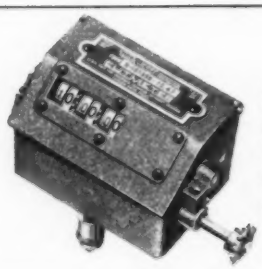
Hosiery Dozens Counter

Used in inspection or on knitting machines. Small figures show single-stocking count. Large figures indicate dozens of pairs up to 100. Hand, foot or machine actuated.

Reset Magnetic Counters

Base mounted or panel mounted. Ruggedly built for speeds up to 1,000 counts per minute. Knob or lock-key reset. Other models for speeds up to 3,000 counts per minute.

Widely used for remote indication.



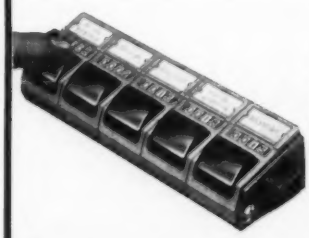
Loom Cut Meters

AND PREDETERMINING COUNTERS:

Cut Meters are predetermining counters for looms, for controlling lengths of cloth woven, without cut marks . . . and without over-runs and shortages. Also available are High Speed Predetermining Counters, both geared and ratchet types, to count any preset number of revolutions, strokes, pieces, lengths.

Count/Pak

The new Veeder-Root Count/Pak — an economical device for high velocity, noncontact counting. Ideal for use on bobbin strippers. Speeds up to 2,500 counts per minute with absolute accuracy. Features include a transistorized circuit with photoelectric sensing system, rugged and reliable construction and Veeder-Root instant reset, high speed electric counter for dependability and long life.



Vary-Tally

This modern hand-operated counter, made only by Veeder-Root, is arranged compactly on stands in tiers. Easily portable, it is ideal for order, stock, inventory control, sales and market analysis, payroll denomination, estimates, traffic control and product inspection. Can be supplied in any of 67 combinations up to 6 tiers high and 12 units wide. Entire row of counters is reset to zero with a turn of one knob.

Veeder-Root INC.

Hartford 2, Connecticut

The Name that Counts

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